

ἈΤΛΑΣ ΟΥΡΑΝΙΟΣ,
The COELESTIAL ATLAS;

OR, A NEW

E P H E M E R I S

For the YEAR of our LORD 1782.

Being the second after

BISSEXTILE, or LEAP-YEAR.

Wherein are contained

The Heliocentrick and Geocentrick Places of the Planets,
the ECLIPSES of the Luminaries, and other remarkable PHÆNO-
MENA that will happen this Year.

Carefully computed

From the genuine TABLES of Dr. EDMUND HALLEY,
those of Professor MAYER, and other the latest and most correct
ASTRONOMATICAL TABLES.

A L S O

A Compleat ALMANACK, containing the FEASTS and FASTS
of the Church of ENGLAND; the Times of the LUNATIONS;
the Rising and Setting of the Sun, Moon, and Planets, &c.

Adapted to the

Meridian and Latitude of the ancient and honourable
CITY of LONDON.

To which are added,

Several useful TABLES: As, a TABLE of the Sun's
Declination; a TABLE by which the Times of the Sun's Rising and
Setting may be known by Inspection, on every Day in the Year, and
in any Part of GREAT-BRITAIN or IRELAND; a TIDE-TABLE,
and a very correct one of the Eclipses of JUPITER's first Satellites;
and, lastly, an exact TABLE of the Rising, Southing, and Setting
of Thirty of the most remarkable fixed Stars, taken from Mr.
FLAMSTEED's Catalogue.

By ROBERT WHITE,

Teacher of the Mathematicks.

Οἱ ἀγαθοὶ διγυῖνται δοξάν Οὐκ.

The THIRTY-THIRD IMPRESSION.

L O N D O N:

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[Price NINE-PENCE stitched.]

Ephemerides. N.

756.6.18

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Chronological Notes for the Year 1782.

Golden Number	-	-	16	Septuagesima Sunday	Jan. 27
Cycle of the Sun	-	-	27	Shrove Sunday	- Feb. 10
The Epact	-	-	15	Easter Day	- Mar. 31
Dominical Letter	-	-	F	Whit Sunday	- May 19
Number of Direction	-	-	25	Trinity Sunday	- May 26
Roman Indiction	-	-	15	Advent Sunday	- Dec. 1

Astronomical CHARACTERS explained.

♈ Aries	♋ Cancer	♎ Libra	♏ Capricorn
♉ Taurus	♌ Leo	♍ Scorpio	♐ Aquarius
♊ Gemini	♍ Virgo	♏ Sagittary	♑ Pisces

♄ Saturn	☉ Sol (the Sun)	☾ Luna (the Moon)	♁ Tellus
♃ Jupiter	♀ Venus	♊ Moon's N. Node	Terra (or the Earth)
♂ Mars	☿ Mercury	♋ her S. Node	

♄ Conjunction when Planets are in the same Sign, Deg. Min. &c

* Sextile when 2 Signs dist. | Δ Trine when 4 Signs dist.

□ Quartile when 3 Signs dist. | ☿ Opposition when 6 Signs dist.

Of the Four Quarters of the YEAR 1782.

THE Spring Quarter begins on the 20th Day of March, at 10 Minutes past 11 in the Morning, apparent Time.

The Summer Quarter begins June the 21st, 21 Minutes past 9 in the Morning.

The Autumnal Quarter begins September the 22d, 59 Minutes past 10 afternoon.

The Winter Quarter begins December the 21st, 23 Minutes past 3 in the Afternoon.

THE beautiful Planet VENUS will be an Evening Star to the 20th Day of March, at which Time she becomes a Morning Star, and so continues to the Year's End.

JUPITER will be a Morning Star until the 15th Day of June; and after that Time he will be an Evening Star to the Year's End.

The NAMES of the Learned JUDGES of the LAW.

I. The R. H. Edward Lord Thurlow, Lord High Chancellor of Great Britain.

Right Honourable Sir Thomas Sewell, Knt. Master of the Rolls.

II. In the } R. H. Wm. Earl Mansfield, L. C. J. Edward Willes, Esq;

K. Bench. } Sir W. H. Ashurst, Knt. Francis Buller, Esq;

III. In the } R. H. Alex. Lord Loughborough, L. C. J. Sir Henry Gould, Knt.

C. Pleas. } Sir George Nares, Knt. John Heath, Esq;

IV. In the } Sir John Skynner, Knt, L. C. B. Sir James Eyre, Knt.

Exchequer } Sir Beaumont Hotham, Knt. Sir Richard Perryn, Knt.

James Wallace, Esq; Att. Gen. James Mansfield, Esq; Sol. Gen.

A TABLE of TERMS and their RETURNS.

Hilary Term begins Jan. 23, ends Feb. 12.

Returns or Effoign-days.

		Exc.	Ret.	Ap.	W. D.
In eight Days of St. Hilary,	- - Jan. 20	21	22	23	Wedn.
From the Day of St. Hilary in 15 Days	- - 27	28	29	30	Wedn.
On the Morrow of the Purif. Blessed Mary, Feb.	3	4	5	6	Wedn.
In eight Days of the Purif. of Blessed Mary,	- 9	10	11	12	Tuefd.

Easter Term begins April 17, ends May 13.

From the Day of Easter in 15 Days,	- April 14	15	16	17	Wedn.
From the Day of Easter in 3 Weeks,	- - 21	22	23	24	Wedn.
From the Day of Easter in 1 Month,	- - 28	29	30	M1	Wedn.
From the Day of Easter in 5 Weeks,	- May 5	6	7	8	Wedn.
On the Morrow of the Ascension,	- - - 10	11	12	13	Monday

Trinity Term begins May 31, ends June 19.

On the Morrow of the Holy Trinity,	- May 27	28	29	31	Friday.
In 8 Days of the Holy Trinity,	- - June 2	3	4	5	Wedn.
In 15 Days of the Holy Trinity,	- - - 9	10	11	12	Wedn.
In 3 Weeks of the Holy Trinity,	- - - 16	17	18	19	Wedn.

Michaelmas Term begins Nov. 6, ends Nov. 28.

On the Morrow of All Souls,	- - - Nov. 3	4	5	6	Wedn.
On the Morrow of St. Martin,	- - - 12	13	14	15	Friday.
In eight Days of St. Martin,	- - - 18	19	20	21	Thursf.
In 15 Days of St. Martin,	- - - 25	26	27	28	Thursf.

N. B. No Sittings in Westminster-Hall on Ascension-day, Midsummer-day, and the 2d of February.

The Exchequer opens eight Days before any Term begins, except Trinity, before which it opens but four Days.

Note, That the first and last Days of every Term, are the first and last Days of Appearance.

BIRTH-DAYS of the ROYAL FAMILY,

KING GEORGE III. June 4, 1738	Prince Adolph. Fred. Feb. 24, 1774
Prince of Wales, Aug. 12, 1762	Princess Mary, April 25, - 1776
Prince Frederick, Aug. 16, 1763	Princess Sophia, Nov. 3, - 1777
Prince Wm. Henry, Aug. 21, 1765	Prince Octavius, Feb. 23, - 1779
Prs. Cha. Aug. Mat. Sept. 29, 1766	Prince Alfred, Sept. 22, - 1780
Prince Edward, Nov. 2, - 1767	Queen Charlotte, May 19, 1744
Prs. Augusta Sophia, Nov. 8, 1768	Prs. Amelia, June 10, - 1711
Prs. Elizabeth, May 22, - 1770	Prs. Augusta of Brun. Aug. 11, 1737
Prince Ernest Augustus, June 5, 1771	Duke of Gloucester, Nov. 25, 1743
Prince Aug. Fred. Jan. 27, 1773	Duke of Cumberland, Nov. 7, 1745

SOVEREIGNS of EUROPE, their Accession, &c.

Kingdoms, &c.	To whom subject.	When born.	Began to reign.
England, &c.	George III.	June 4, 1738	Oct. 25, 1760
France	Lewis XVI.	Aug. 23, 1754	May 10, 1774
Russia	Catharine II.	May 2, 1729	July 9, 1762
Spain	Charles III.	Jan. 20, 1716	Aug. 10, 1759
Portugal	Mary	Dec. 7, 1734	Feb. 24, 1777
Prussia	Frederic III.	Jan. 24, 1712	May 20, 1740
Denmark & Norway	Christian VII.	Jan. 29, 1749	Jan. 14, 1766
Sweden	Gustavus III.	Jan. 24, 1746	Feb. 13, 1771
Germany	Joseph	Mar. 13, 1741	Aug. 18, 1765
Poland	Stan flaus III.	Jan. 17, 1732	Nov. 25, 1764
Holland	William V.	March 8, 1748	Oct. 11, 1751
Popedom	Pius VI.	Dec. 27, 1717	Feb. 18, 1775
Sardinia	Victor	June 26, 1726	Mar. 20, 1773
Ottoman Empire	Achmet IV.	Nov. 5, 1719	Jan. 21, 1774

The FULL WEIGHT of the Coins, with the LEAST WEIGHT allowed to pass of the Gold Coin.

Wt. allowed.		Full Wt.		SILVER.		Full Wt.	
GOLD. dwt. gr.		dwt. gr.				dwt. gr.	
Guinea, - -	5 8	5	9 ³² ₈₀	A Crown, - -	-	19	8 ¹⁶ ₃₁
Half Guinea, -	2 16	2	16 ⁶⁴ ₈₀	Half Crown, -	-	9	16 ⁸ ₃₁
Quarter Guinea, 1	8	1	8 ³² ₈₀	Shilling, - -	-	3	20 ²⁸ ₃₁
				Six Pence, - -	-	1	22 ¹⁴ ₃₁

According to the above proportions it appears, that the value of a *lb.* of silver is 62 s. or 3 l. 2 s. and of a *lb.* of gold is 44½ guineas, or 46 l. 14 s. 6 d. Also that the *oz.* of silver is 5 s. 2 d. and the *oz.* of gold 3 l. 17 s. 10½ d. So that the value of the standard gold is 15 times that of the silver, and 1-14th more.

A TABLE of the **KINGS and QUEENS** of **ENGLAND** since
the **CONQUEST.**

Kings and Queens	Born A.D.	Began their Reign	Reigned Y. M. D.	Age	Rem. Deaths and Deposed	Where buried
Will. Conq.	1027	1066 Oct. 14	20 10 26	60	Burst by Leap.	Caen, Norm
Will. Rufus	1057	1087 Sept. 9	12 10 24	43	Slain acciden- tally.	Winchester
Henry I.	1068	1100 Aug. 2	35 3 29	77		Reading
Stephen	1105	1135 Dec. 1	18 10 24	49		Feverham
Henry II.	1133	1154 Oct. 25	34 8 11	55		Fonteveraud
Richard I.	1156	1189 July 6	9 9 0	43	Slain with an Arrow.	Fonteveraud
John	1165	1199 April 6	17 6 13	50		Worcester
Henry III.	1207	1216 Oct. 19	56 0 28	65		Westminster
Edward I.	1239	1272 Nov. 16	34 7 21	67		Westminster
Edward II.	1284	1307 July 7	19 6 18	43		Gloucester
Edward III.	1312	1327 Jan. 25	50 4 27	65		Westminster
Richard II.	1366	1377 June 21	22 3 8	33	Dep. & murd.	Westminster
Henry IV.	1367	1399 Sept. 29	13 5 20	46		Canterbury
Henry V.	1389	1413 Mar. 20	9 5 11	33		Westminster
Henry VI.	1421	1422 Aug. 31	38 6 4	49	Dep. & murd.	Windfor
Edward IV.	1442	1461 Mar. 4	22 1 5	41		Windfor
Edward V.	1471	1483 April 9	0 2 15	12	Murder'd.	Not known
Richard III.	1443	1483 June 22	2 2 0	42	Slain in Battle.	Leicester
Henry VII.	1456	1485 Aug. 22	23 8 0	52		Westminster
Henry VIII.	1492	1509 April 22	37 9 6	55		Windfor
Edward VI.	1537	1547 Jan. 28	6 5 8	15		Westminster
Mary I.	1516	1553 July 6	5 4 11	42	Died of Grief.	Westminster
Elizabeth	1533	1558 Nov. 17	44 4 7	69		Westminster
James I.	1566	1603 Mar. 24	22 0 3	58		Westminster
Charles I.	1600	1625 Mar. 27	23 10 3	48	Beheaded.	Windfor
Charles II.	1630	1649 Jan. 30	36 0 7	54		Westminster
James II.	1633	1685 Feb. 6	4 0 7	67	Abdicated.	St. Germain
Mary II.	1662	1689 Feb. 13	5 10 15	32		Westminster
William III.	1650	1689 Feb. 13	13 0 23	52	Kill'd by a Fall from his Horse.	Westminster
Anne	1665	1702 Mar. 8	12 4 24	49		Westminster
George I.	1660	1714 Aug. 1	12 10 10	67		Hanover
George II.	1683	1727 June 11	33 4 14	77		Westminster
George III.	1738	1760 Oct. 25	Crowned Sept. 22, 1761.			

Above you view the Rise and Fall of Kings,
Whose Fate sometimes a useful Lesson brings.
Well if all Men could profit from the past!
Each know his Duty, each excel the last,
And justly execute his stated Task.

A TABLE of the most Reverend, Right Reverend, and Reverend; the ARCHBISHOPS, BISHOPS and DEANS, exercising Ecclesiastical Jurisdiction, 1782.

BISHOPS.	Sees.	Date.	Succeeded.	DEANS.
H. Dr. F. Cornwallis	<i>Litch. & Cov.</i>	1749	Smallbroke de.	
Arch-Bishop	Canterb. A. B.	1768	Secker decaf.	Dr. Horne
Dr. Will. Markham	<i>Chester</i>	1748	Keene translat.	
Arch-Bishop	York A. B.	1777	Drummond de.	Dr. J. Fountayne
	<i>St. David's</i>	1761	Squire decaf.	
Dr. Robert Lowth	<i>Oxford</i>	1757	Hume transl.	Rt. Rev. Dr. Thomas Newton
	London	1777	Terrick dec.	
	<i>Bangor</i>	1754	Willes transl.	
Dr. John Egerton	Durham	1752	Trevor decaf.	Hon. W. Digby
	<i>Litch. & Cov.</i>	1768	Cornwallis tr.	
Hon. Dr. B. North	<i>Worcester</i>	1775	Johnson decaf.	
	Winchester	1781	Thomas decaf.	Dr. Ogle
Lord J. Beauclerk	Hereford	1746	Egerton decaf.	Dr. Wetherell
Sir W. Ashburnham	Chichester	1754	Mawson transl.	Dr. Harward
	<i>Bristol</i>	1756	Conybeare dec.	
Dr. John Hume	<i>Oxford</i>	1758	Secker tr.	
	Salisbury	1766	Thomas tr.	Dr. Noel
	<i>Bristol</i>	1758	Hume translat.	
Dr. Philip Yonge	Norwich	1761	Hayter transl.	Dr. P. Lloyd
Dr. Thomas Newton	Bristol	1761	Yonge transl.	Dr. Hallam
	<i>St. David's</i>	1766	Clagget transl.	
Dr. Charles Mofs	Bath & Wells	1774	Willes decaf.	Ld. Fr. Seymour
Dr. J. Shipley	St. Asaph	1769	Newcome dec.	Dr. W. D. Shipley
Dr. Edmund Law	Carlisle	1769	Lyttelton dec.	Dr. Percy
Dr. S. Barrington	Landaff	1769	Shipley transl.	Dr. Adams, A. D.
Dr. John Hinchliffe	Peterborough	1769	Lamb dec.	Dr. Ch. Tarrant
	<i>Gloucester</i>	1779	Warburton dec.	
H. Dr. James Yorke	Ely	1781	Keene decaf.	Dr. Cooke
Dr. John Thomas	Rocheſter	1774	Pearce dec.	Dr. Cuſt
	<i>Litch. & Cov.</i>	1775	B. North tr.	
Dr. Hurd	<i>Worceſter</i>	1781	B. North tr.	Dr. Foley
Dr. Moore	Bangor	1775	Ewer decaf.	Dr. Tho. Lloyd
Dr. Beilby Porteus	Cheſter	1777	Markham tran.	Dr. Will. Smith
Dr. John Butler	Oxford	1777	Lowth tranſl.	Dr. Lewis Bagot.
Dr. John Roſs	Exeter	1778	Keppel dec.	Dr. Jer. Milles
Dr. Thurlow	Lincoln	1779	Green dec.	
Dr. John Warren	St. David's	1779	Yorke tranſl.	Mr. Wollaſton, P.
Dr. J. Cornwallis	Litch. & Cov.	1781	Hurd tranſl.	Dr. Proby
Dr. Samuel Hallifax	Glouceſter	1781	Yorke tranſl.	Dr. Joſiah Tucker
	Westminſter	1768		Biſhop Thomas
Dr. George Maſon	Sodor & Man	1779	Richmond dec.	
	Windſor	1778	Hon. &	Rev. Dr. Harley

A General INTEREST TABLE,

by which the Interest of any Sum, at any Rate, and for any Time, may be readily found.

Days	3 per Cent.				$3\frac{1}{2}$ per Cent.				4 per Cent.				$4\frac{1}{2}$ per Cent.				5 per Cent.			
	l.	s.	d.	q.	l.	s.	d.	q.	l.	s.	d.	q.	l.	s.	d.	q.	l.	s.	d.	q.
1			1	3			2	1			2	2			3	0			3	0
2			3	3			4	2			5	1			6	0			6	2
3			5	3			6	3			7	3			8	3			9	3
4			7	3			9	0			10	2			11	3		1	1	0
5			9	3			11	2		1	1	1		1	2	3		1	4	1
6			11	3		1	1	3		1	3	3		1	5	3		1	7	2
7		1	1	3		1	4	0		1	6	1		1	8	3		1	11	0
8		1	3	3		1	6	1		1	9	0		1	11	3		2	2	1
9		1	5	3		1	8	2		1	11	2		2	2	2		2	5	2
10		1	7	2		1	11	0		2	2	1		2	5	2		2	8	3
20		3	3	1		3	10	0		4	4	2		4	11	1		5	5	3
30		4	11	0		5	9	0		6	6	3		7	4	3		8	2	2
40		6	6	3		7	8	0		8	9	0		9	10	1		10	11	2
50		8	2	2		9	7	0		10	11	2		12	3	3		13	8	1
60		9	10	1		11	6	0		13	1	3		14	9	2		16	5	1
70		11	6	0		13	5	0		15	4	0		17	3	1		19	2	0
80		13	1	3		15	4	0		17	6	1		19	8	3	1	1	11	0
90		14	9	2		17	3	0		19	8	2	1	2	2	1	1	4	7	3
100		16	5	1		19	2	0	1	1	11	0	1	4	8	0	1	7	4	3
200	1	12	10	2	1	18	4	12	3	10	0	2	9	3	3	2	14	9	2	
300	2	9	3	3	2	17	6	13	5	9	0	3	13	11	14	2	2	2	1	

N. B. This Table contains the interest of 100l. for all the several days in the 1st column, and at the several rates of 3, $3\frac{1}{2}$, 4, $4\frac{1}{2}$, and 5 per cent. in the other 5 columns.

To find the interest of 100l. for any other time, as 1 year and 278 days, at $4\frac{1}{2}$ per cent. Take the sums for the several days here annexed.

The interest for 1 year	4	10	0	0
Against 200 days is -	2	9	3	3
<u>70 days -</u>	0	17	3	1
<u>8 days -</u>	0	1	11	3
Interest required -	7	18	6	3

For any other Sum than 100l. First find for 100l. as above, and take it so many times or parts as the sum is of 100l. Thus, to find for 355l. at $4\frac{1}{2}$, for 1 year and 278 days,

First, 3 times the above sum, (for 300l.) is	-	23	15	8	1
$\frac{1}{2}$ (for 50l.) is	-	3	19	3	1
$\frac{1}{10}$ of this (for 5l.) is	-	0	7	11	0
So for 355 it is	-	28	2	10	2

When the interest is required for any other rate than those in the table, it may easily be made out from them. So $\frac{1}{2}$ of 5 is $2\frac{1}{2}$, $\frac{1}{2}$ of 4 is 2, $\frac{1}{2}$ of 3 is $1\frac{1}{2}$, $\frac{1}{3}$ of 3 is 1, 1-6th of 3 is $\frac{1}{2}$, and 1-12th of 3 is $\frac{1}{4}$. And so, by parts, or by adding or subtracting, any rate may be made out.

The LUNATIONS.

Last quarter the 6 day, 39 minutes past 10 at night,
 New Moon the 13th day, 40 minutes past 6 at night,
 First quarter the 21st day, 45 minutes past noon,
 Full Moon the 29th day, 46 minutes past 8 morning.

M	Sundays & other remark. days	☉ rises	☉ sets	☉'s declin.	☾'s declin.	☾ rises & sets	☾ south	Clock bef. ☉	
1	Circumcision	8 5	3 55	22 s 59	24 n 26	5 a 37	1 m 11	4 15	
2		8 4	3 56	22 54	20 30	6 59	2 3	4 43	
3		8 3	3 57	22 48	15 27	8 20	2 55	5 10	
4		8 3	3 57	22 42	9 36	9 43	3 44	5 38	
5	Old Christ. day	8 2	3 58	22 35	3 13	11 7	4 30	6 5	
F	2 S. a. Ch. Epiph.	8 1	3 59	22 28	2 s 22	morn.	5 17	6 31	
7	Plow Monday	8 0	4 0	22 20	9 51	0 30	6 4	6 57	
8	Lucian	7 59	4 1	22 12	15 54	1 57	6 54	7 22	
9		7 58	4 2	22 3	21 8	3 24	7 46	7 47	
10		7 57	4 3	21 54	25 9	4 54	8 43	8 12	
11		7 56	4 4	21 45	27 35	6 22	9 45	8 35	
12	O. N. Year's day	7 55	4 5	21 35	28 10	7 32	10 47	8 59	
F	1 S. aft. Epiph.	Hilary.	4 6	21 25	26 56	☾ sets.	11 46	9 21	
14	Ox. & Ca. T. beg	7 53	4 7	21 14	24 3	4 a 37	0 a 44	9 43	
15		7 52	4 9	21 3	19 56	6 2	1 37	10 4	
16		7 51	4 10	20 52	14 57	7 23	2 25	10 25	
17	O. Twelfth day	7 49	4 11	20 40	9 27	8 38	3 8	10 45	
18	Q. Char. b. d. k.	Prisca	4 13	20 27	3 42	9 51	3 49	11 4	
19		7 47	4 14	20 15	2 n 3	11 1	4 29	11 22	
F	2 S. aft. Epiph.	Fabian	4 15	20 2	7 38	morn.	5 9	11 40	
21	Agnes	7 44	4 17	19 48	12 55	0 12	5 50	11 57	
22	Vincent	7 42	4 18	19 35	17 44	1 23	6 32	12 13	
23	Hil. Term beg.	7 41	4 20	19 21	21 53	2 35	7 17	12 28	
24		7 39	4 21	19 6	25 11	3 49	8 6	12 42	
25	Conv. St. Paul	7 38	4 23	18 51	27 24	5 0	8 59	12 56	
26		7 36	4 24	18 36	28 16	6 4	9 54	13 8	
F	Septuagesima	Pr. Aug. Fred. b.	18 21	27 40	6 58	10 50	10 50	13 20	
28		7 33	4 27	18 5	25 27	7 37	11 46	13 31	
29		7 32	4 29	17 49	21 48	☾ rises.	morn.	13 41	
30	K. Charl. I. beh.	7 30	4 31	17 32	16 55	5 54	0 39	13 51	
31		7 28	4 32	17 15	11 5	7 20	1 29	13 59	
Days	Day increaf.	Length of Day.	Helioc. long. ♀	Helioc. long. ♂	Helioc. long. ♂	Helioc. long. ☉	Helioc. long. ♀	Helioc. long. ☿	☿ rises.
1	0 6	7 50	23 2	10 55	7 8	11 19	23 8	13 3	6 m 48
7	0 16	8 0	23 13	11 24	10 43	17 26	2 11	59 0	6 24
13	0 28	8 12	23 23	11 53	14 6	23 33	12 38	16 40	6 1
19	0 43	8 27	23 34	12 21	17 27	29 40	22 19	3 22	5 59
25	1 2	8 40	23 45	12 50	20 46	5 46	2 56	1 21	5 16

1782

January.

9

Days	Day lig begins	Day lig. ends	Durat. twilig.	Pl. μ 's node	h 's latitude	μ 's latitude	δ 's latitude	η 's latitude	θ 's latitude
1	5 59	6 1	2 6	21 γ 20	1 n 5	0 n 32	0 s 22	1 s 13	0 n 7
7	5 56	6 4	2 4	21 1	1 5	0 32	0 15	0 43	0 s 36
13	5 52	6 8	2 2	20 42	1 6	0 31	0 8	0 10	1 13
19	5 46	6 14	2 0	20 23	1 6	0 31	0 1	0 n 32	1 41
25	5 39	6 21	1 58	20 4	1 6	0 31	0 n 5	1 18	1 59
Days	$\odot$'s longitude	$\odot$'s long.	$\odot$'s lat.	h 's long.	μ 's long.	δ 's long.	η 's long.	θ 's long.	θ 's long.
1	γ 11 19 15	2 Ω 26	4 n 56	24 $\dagger$ 38	15 $\dagger$ 32	26 $\times$ 26	28 $\sim$ 19	23 $\dagger$ 54	
2	12 20 25	15 46	4 35	24 45	15 45	27 8	29 23	25 21	
3	13 21 35	29 17	3 58	24 52	15 58	27 49	0 $\times$ 26	26 49	
4	14 22 45	12 μ 56	3 8	24 59	16 10	28 31	1 29	28 17	
5	15 23 55	26 44	2 6	25 6	16 23	29 12	2 32	29 46	
F	16 25 5	10 $\sim$ 39	0 56	25 13	16 36	29 54	3 34	1 γ 15	
7	17 26 16	24 41	0 s 18	25 19	16 48	0 γ 35	4 36	2 45	
8	18 27 26	8 μ 50	1 32	25 26	17 1	1 17	5 36	4 5	
9	19 28 36	23 5	2 40	25 33	17 14	1 58	6 36	5 36	
10	20 29 47	7 $\dagger$ 24	3 38	25 39	17 26	2 40	7 36	7 17	
11	21 30 57	21 42	4 23	25 46	17 38	3 21	8 36	8 50	
12	22 32 6	5 γ 56	4 50	25 53	17 50	4 3	9 36	10 23	
F	23 33 15	19 59	5 0	25 59	18 2	4 44	10 36	11 55	
14	24 34 24	3 $\sim$ 47	4 52	26 6	18 14	5 25	11 35	13 30	
15	25 35 33	17 15	4 28	26 13	18 26	6 7	12 34	15 3	
16	26 36 41	0 $\times$ 21	3 50	26 19	18 38	6 48	13 31	16 37	
17	27 37 47	13 5	3 1	26 26	18 50	7 29	14 28	18 12	
18	28 38 52	25 29	2 5	26 33	19 2	8 10	15 24	19 47	
19	29 39 57	7 γ 37	1 4	26 39	19 14	8 52	16 19	21 23	
F	$\sim$ 0 41 1	19 33	0 1	26 45	19 26	9 33	17 14	23 0	
21	1 42 3	1 δ 22	1 n 1	26 51	19 38	10 15	18 9	24 37	
22	2 43 4	13 10	2 1	26 57	19 49	10 56	19 3	26 15	
23	3 44 4	25 2	2 56	27 3	20 11	11 38	19 56	27 54	
24	4 45 2	7 Π 4	3 44	27 9	20 13	12 19	20 49	29 33	
25	5 46 0	19 21	4 22	27 15	20 24	13 1	21 41	1 $\sim$ 13	
26	6 46 56	1 $\sim$ 55	4 48	27 21	20 36	13 42	22 32	2 54	
F	7 47 51	14 48	5 1	27 27	20 47	14 24	23 22	4 35	
28	8 48 45	28 0	4 58	27 33	20 59	15 5	24 11	6 17	
29	9 49 37	11 Ω 31	4 39	27 39	21 10	15 46	24 59	8 0	
30	10 50 29	25 17	4 3	27 45	21 22	16 27	25 47	9 43	
31	11 51 19	9 μ 14	3 11	27 51	21 33	17 0	26 34	11 27	
Days	μ 's rises	δ 's sets	η 's sets	θ 's rises	h 's declin.	μ 's declin.	δ 's declin.	η 's declin.	θ 's declin.
1	6 m 7	10 a 54	8 a 11	6 50	22 s 17	22 s 0	1 s 46	13 s 12	23 s 12
7	5 47	10 51	8 21	7 7	22 18	22 17	0 n 1	10 30	24 2
13	5 26	10 48	8 31	7 22	22 18	22 24	1 46	7 45	24 8
19	5 7	10 46	8 41	7 34	22 19	22 31	3 30	4 54	23 26
25	4 48	10 45	8 48	7 40	22 20	22 36	5 13	2 6	21 51

lock
F. $\odot$ 15
43
10
38
531
57
22
47
1235
59
21
43
425
45
4
22
4057
13
28
42
568
20
31
41
51
59h
es.m 48
24
1
39
16

10 February hath XXVIII Days. White.

The LUNATIONS.

Last quarter the 5th day at 38 minutes past 6 morning,
New Moon the 12th day at 48 minutes past 8 morning,
First-quarter the 20th day at 18 minutes past 10 morning,
Full Moon the 27th day at 30 minutes past 9 at night.

M	Sundays & other	☉	☉	☉	☾'s	☾ rises	☾	Clock
D	remark. days	rises	sets	declin.	declin.	& sets	south	bef. ☉
1		7 27	4 34	16 s 58	4 n 38	8 a 45	2 m 18	14 7
2	Purif. Candl. d.	7 25	4 36	16 41	2 s 5	10 9	3 6	14 14
F	Sexages. Sunday	Blafez 3	4 37	16 23	8 42	11 35	3 54	14 20
4		7 21	4 39	16 5	14 54	morn	4 43	14 25
5	Agatha	7 20	4 41	15 47	20 18	1 2	5 35	14 30
6		7 18	4 43	15 29	24 32	2 35	6 31	14 34
7		7 16	4 44	15 10	27 18	3 59	7 29	14 37
8		7 14	4 46	14 51	28 20	5 15	8 30	14 39
9		7 13	4 48	14 32	27 37	6 13	9 30	14 40
F	Quinqua. Sunday	7 11	4 50	14 12	25 14	6 54	10 28	14 41
11		7 9	4 52	13 52	21 31	7 21	11 22	14 41
12	Hil. Term ends.	Shro. T.	4 54	13 32	16 47	☾ sets	o a 1	14 40
13	Ash-Wednesday	7 5	4 56	13 12	11 23	6 a 15	0 50	14 38
14	Valentine	7 3	4 57	12 52	5 28	7 29	1 41	14 36
15		7 1	4 59	12 31	0 n 23	8 41	2 21	14 33
16		7 0	5 1	12 10	5 56	9 52	3 1	14 29
F	Qu d. 1 S. in Lt.	6 58	5 3	11 49	11 24	11 3	3 41	14 24
18		6 56	5 5	11 28	16 24	morn	4 25	14 19
19		6 54	5 7	11 7	20 48	0 16	5 7	14 13
20	Ember-week	6 52	5 0	10 45	24 21	1 28	5 55	14 6
21		6 50	5 11	10 23	26 58	2 41	6 46	13 59
22		6 48	5 13	10 2	28 18	3 50	7 40	13 50
23	Pr. Octavius bo.	6 46	5 15	9 40	28 13	4 48	8 36	13 42
F	2 Sun. in Lent.	St. Mat. Pr. Ad. Fred. bo.	5 17	9 26	26 36	5 34	9 32	13 32
25		6 42	5 18	8 55	23 31	6 5	10 26	13 23
26		6 40	5 20	8 33	19 2	6 31	11 19	13 12
27		6 38	5 22	8 10	13 25	☾ rises	morn	13 1
28		6 36	5 24	7 48	6 57	6 a 22	0 10	12 49
Days	Day	Length	Helioc.	Helioc.	Helioc.	Helioc.	Helioc.	h
	increas.	of day	long. ♀	long. ♂	long. ♂	long. ☉	long. ♀	rises
1	1 23	9 7	23 58	13 25	24 36	12 52	13 21	4 m 49
7	1 44	9 28	24 9	13 54	27 50	18 57	23 5	4 27
13	2 7	9 51	24 19	14 22	11 3	25 1	2 45	4 6
19	2 29	10 13	24 30	14 51	4 14	11 4	12 35	3 45
25	2 52	10 36	24 41	15 20	7 22	7 5	22 20	3 25

1782

February.

II

Days	Day lig. begins	Day lig. ends	Durat. twilig.	Pl. D's node	h's latitude	4's latitude	♂'s latitude	♀'s latitude	♂'s latitude
1	5 31	6 25	1 55	19V42	1 n 6	0 n 31	0 n 12	2 n 19	2 s 4
7	5 22	6 38	1 54	19 23	1 6	0 31	0 17	3 16	1 49
13	5 12	6 48	1 52	19 3	1 6	0 30	0 22	4 17	1 16
19	5 1	6 59	1 52	18 44	1 6	0 30	0 27	5 20	0 18
25	4 50	7 10	1 52	18 25	1 7	0 30	0 31	6 25	1 n 1

Days	☉'s longitude	☽'s long.	☽'s latitude	h's long.	4's long.	♂'s long.	♀'s long.	♂'s long.
1	12 52 8	23 12 19	2 n 9	27 1 56	21 1 44	17V50	27X20	13 12
2	13 52 56	7 27 27	0 57	28 2 55	18 31	28 5	14 57	
F	14 53 44	21 36	0 s 18	28 8 22	19 12	28 49	16 43	
4	15 54 31	5 14 45	1 32	28 13 22	19 53	29 31	18 30	
5	16 55 16	19 51	2 40	28 19 22	20 34	0V12	20 18	
6	17 56 1	3 1 54	3 39	28 24 22	37 21	16 0	52 22	6
7	18 56 45	17 53	4 24	28 29 22	47 21	57 1	31 23	55
8	19 57 27	1 1 46	4 53	28 35 22	57 22	38 2	9 25	44
9	20 58 8	15 31	5 5	28 40 23	7 23	19 2	45 27	34
F	21 58 49	29 7	4 59	28 45 23	17 24	0 3	20 29	24
11	22 59 28	12 29	4 37	28 50 23	27 24	41 3	53 13	13
12	24 0 5	25 36	4 1	28 55 23	37 25	22 4	24 3	3
13	25 0 41	8X28	3 13	29 0 23	46 26	3 4	54 4	53
14	26 1 16	21 2	2 16	29 5 23	56 26	44 5	24 6	43
15	27 1 48	3V1	1 14	29 9 24	6 27	25 5	52 8	32
16	28 2 18	15 26	0 9	29 14 24	15 28	6 6	18 10	20
F	29 2 47	27 21	0 n 55	29 19 24	24 28	47 6	42 12	8
18	X 0 3 14	9 10	1 56	29 23 24	33 29	28 7	4 13	54
19	1 3 39	20 58	2 53	29 27 24	42 0	8 9	23 15	38
20	2 4 2	2 11 50	3 42	29 32 24	51 0	50 7	41 17	20
21	3 4 22	14 52	4 22	29 36 24	59 1	31 7	57 18	58
22	4 4 41	27 8	4 51	29 41 25	8 2	12 8	11 20	32
23	5 4 57	9 44	5 8	29 45 25	16 2	53 8	23 22	2
F	6 5 12	22 41	5 9	29 49 25	25 3	34 8	32 23	27
25	7 5 24	6 1	4 53	29 53 25	33 4	15 8	39 24	48
26	8 5 35	19 45	4 21	29 57 25	41 4	55 8	43 26	3
27	9 5 44	3 11 50	3 32	0 1 25	48 5	36 8	44 27	11
28	10 5 51	18 11	2 29	0 5 25	55 6	16 8	44 28	14

Days	☿ rises	♂ sets	♀ sets	♂ sets	h's declin.	4's declin.	♂'s declin.	♀'s declin.	♂'s declin.
1	4 m 25	10 a 44	8 a 54	4 a 26	22 s 22	22 s 41	7 n 11	1 n 3	18 s 51
7	4 7	10 44	8 56	5 5	22 22	22 46	8 49	3 37	15 17
13	3 48	10 44	8 54	5 48	22 22	22 49	10 25	5 54	10 54
19	3 31	10 45	8 49	6 28	22 22	22 51	11 58	7 51	5 57
25	3 13	10 46	8 46	7 2	22 21	22 53	13 28	9 20	1 8

The LUNATIONS.

Last quarter the 6th day at 31 minutes past 2 afternoon,
 New Moon the 14th day at 21 minutes before 1 morning,
 First quarter the 22d day at 25 minutes past 5 morning,
 Full Moon the 29th day at 11 minutes past 8 morning.

M	Sundays & other	☉	☉	☉'s	☾'s	☾ rises	☾	Clock
D	remark. days	rises	sets	declin.	declin.	& sets	South.	bef. ☉
1	David	6 34	5 26	7 s 25	on 4	7 a 50	1 m 0	12 37
2	Chad	6 33	5 28	7 2	6 s 52	9 20	1 49	12 24
F 3	Sun. in Lent	6 31	5 30	6 39	13 26	10 51	2 40	12 11
4		6 29	5 32	6 16	19 14	morn	3 33	11 58
5		6 27	5 34	5 53	23 52	0 21	4 28	11 44
6		6 25	5 36	5 29	27 0	1 53	5 27	11 30
7	Perpetua	6 23	5 38	5 6	28 26	3 13	6 28	11 15
8		6 21	5 40	4 43	28 5	4 15	7 28	11 0
9		6 19	5 42	4 19	26 6	5 1	8 27	10 44
F 4	or Midlent S.	6 17	5 44	3 56	22 44	5 29	9 21	10 28
11		6 15	5 46	3 32	18 17	5 51	10 11	10 12
12	Gregory.	6 13	5 48	3 9	13 6	6 8	10 59	9 56
13		6 11	5 50	2 45	7 28	6 20	11 42	9 39
14		6 9	5 52	2 21	1 38	☾ sets	0 a 22	9 22
15		6 7	5 54	1 58	4 n 11	7 a 42	1 3	9 5
16		6 5	5 56	1 34	9 46	8 54	1 43	8 47
F 5	Sun. in Lent	St. Patr.	5 58	1 10	14 58	10 7	2 25	8 30
18	Edw. K. W. S.	6 1	6 0	0 47	19 36	11 20	3 8	8 12
19		5 59	6 2	0 23	23 28	morn	3 55	7 54
20		5 57	6 4	on 1	26 22	0 33	4 43	7 35
21	Benedict	5 55	6 6	0 24	28 7	1 42	5 35	7 17
22	Camb. T. ends	5 53	6 8	0 48	28 33	2 43	6 30	6 59
23	Oxf. Term ends	5 51	6 10	1 12	27 32	3 34	7 24	6 40
F	Palin Sunday	5 49	6 12	1 35	25 4	4 11	8 19	6 21
25	Annunc. Ladyd.	5 47	6 14	1 59	21 11	4 40	9 12	6 3
26		5 45	6 16	2 22	16 3	5 0	10 2	5 44
27		5 43	6 18	2 46	9 56	5 15	10 53	5 25
28	Maundy Thurs.	5 41	6 20	3 9	3 8	5 30	11 44	5 6
29	Good Friday	5 39	6 22	3 33	3 s 59	☾ rises	morn	4 48
30		5 37	6 24	3 56	10 57	8 29	0 35	4 29
F	Easter day	5 35	6 26	4 19	17 18	10 4	1 28	4 10
Days	Day	Length	Helioc.	Helioc.	Helioc.	Helioc.	Helioc.	h
	increaf.	of day	long. ♀	long. ♂	long. ♂	long. ☉	long. ♀	rises
1	3 8	10 52	24 48	15 36	9 12	11 17	6 28	51 9 20 2 3 m 10
7	3 31	11 15	24 59	16 5	12 34	17 6	8 12	37 13 14 8 2 50
13	3 55	11 39	25 10	16 34	15 37	23 5	18 21	13 17 6 2 30
19	4 19	12 3	25 21	17 3	18 39	29 3	28 5	7 19 2 9
25	4 43	12 27	25 31	17 32	21 39	4 59	7 47	27 51 1 47

1782

March.

I 3

Days	Day lig. begins	Day lig. ends	Durat. twilig.	Pl. ζ 's node	h 's latitude	μ 's latitude	δ 's latitude	η 's latitude	θ 's latitude
1	4 43	7 17	1 51	18 γ 13	1 n 6	0 n 30	0 n 34	7 n 6	1 n 58
7	4 30	7 30	1 52	17 54	1 7	0 30	0 37	7 57	3 10
13	4 17	7 43	1 53	17 35	1 7	0 30	0 40	8 27	3 36
19	4 14	7 56	1 54	17 16	1 7	0 30	0 44	8 27	2 55
25	3 50	8 10	1 56	16 57	1 7	0 30	0 47	7 55	1 30
Days	$\odot$'s longitude	ζ 's long.	ζ 's latitude	h 's long.	μ 's long.	δ 's long.	η 's long.	θ 's long.	
1	$\times$ 11 5 56	2 Δ 43	1 n 15	0 γ 9	26 $\uparrow$ 2	6 δ 57	8 γ 43	29 $\times$ 5	
2	12 5 59	17 19	0 s 4	0 13	26 10	7 38	8 39	25 50	
F	13 6 0	1 m 53	1 23	0 16	26 17	8 19	8 32	0 γ 27	
4	14 6 0	16 21	2 36	0 20	26 24	9 0	8 22	0 56	
5	15 5 59	0 $\uparrow$ 39	3 38	0 24	26 31	9 41	8 9	1 16	
6	16 5 56	14 44	4 27	0 27	26 38	10 22	7 53	1 R 37	
7	17 5 51	28 37	4 58	0 30	26 45	11 3	7 34	1 27	
8	18 5 44	12 γ 16	5 13	0 33	26 52	11 43	7 13	1 19	
9	19 5 36	25 40	5 10	0 36	26 58	12 24	6 50	1 4	
F	20 5 26	8 $\sim$ 52	4 50	0 39	27 4	13 4	6 26	1 40	
11	21 5 15	21 49	4 16	0 42	27 10	13 44	6 0	0 9	
12	22 5 2	4 $\times$ 33	3 30	0 45	27 16	14 25	5 32	29 $\times$ 32	
13	23 4 47	17 5	2 34	0 47	27 22	15 5	5 3	28 49	
14	24 4 30	29 24	1 32	0 49	27 27	15 46	4 32	28 2	
15	25 4 11	11 γ 33	0 26	0 52	27 33	16 26	3 59	27 10	
16	26 3 50	23 32	0 n 40	0 54	27 39	17 7	3 24	26 15	
F	27 3 27	5 δ 24	1 44	0 56	27 44	17 47	2 47	25 20	
18	28 3 1	17 12	2 43	0 59	27 49	18 28	2 10	24 25	
19	29 2 33	29 0	3 35	1 1	27 54	19 8	1 32	23 32	
20	γ 0 2 2	10 Π 53	4 19	1 3	27 58	19 48	0 53	22 41	
21	1 1 29	22 53	4 51	1 5	28 3	20 28	0 14	21 8	
22	2 0 54	5 $\sim$ 7	5 11	1 7	28 7	21 9	29 $\times$ 36	21 8	
23	3 0 17	17 39	5 17	1 9	28 11	21 49	28 59	20 2	
F	3 59 37	0 Ω 34	5 7	1 11	28 15	22 29	28 23	19 5	
25	4 58 55	13 51	4 41	1 12	28 19	23 9	27 40	23 2	
26	5 58 10	27 35	3 59	1 13	28 22	23 49	27 15	18 59	
27	6 57 23	11 m 46	3 0	1 14	28 26	24 29	26 42	18 41	
28	7 56 34	26 10	1 48	1 15	28 29	25 9	26 10	18 28	
29	8 55 43	11 $\sim$ 8	0 28	1 17	28 33	25 49	25 39	18 21	
30	9 54 50	26 7	0 s 55	1 18	28 36	26 29	25 11	18 D 18	
F	10 53 55	11 m 7	2 14	1 19	28 39	27 9	24 45	18 23	
Days	μ 's rises	δ 's sets	η 's sets	θ 's sets	h 's declin.	μ 's declin.	δ 's declin.	η 's declin.	θ 's declin.
1	2 m 58	10 a 46	8 a 26	7 a 15	22 s 21	22 54	14 n 23	9 n 58	1 n 26
7	2 39	10 48	8 0	7 9	22 21	22 55	15 45	10 18	3 30
13	2 20	10 50	7 24	6 34	22 21	22 56	17 2	9 45	2 49
19	2 0	10 51	rises	rises	22 20	22 57	18 14	8 22	0 7
25	1 40	10 53	4 m 52	4 m 43	22 20	22 57	19 21	6 23	2 s 50

The LUNATIONS.

Last quarter the 4th day at 8 minutes past 11 at night,
 New Moon the 12th day at 32 minutes past 5 afternoon,
 First quarter the 20th day at 54 minutes past 8 evening,
 Full Moon the 27th day at 2 minutes past 5 afternoon.

M D	Sundays & other remark. days	☉ rises	☉ sets	☉'s declin.	(☉'s declin.	☾ rises & sets	☾ South	Clock bef. ☉	
1	Faster Monday	5 33	6 28	4 n 42	22 s 34	11 a 40	2 m 24	3 52	
2	Easter Tuesday	5 31	6 30	5 5	26 20	morn	3 25	3 33	
3	Richard.	5 29	6 32	5 28	28 18	1 8	4 27	3 15	
4	St. Ambrose.	5 27	6 34	5 51	28 25	2 18	5 29	2 57	
5	Old Lady day.	5 25	6 36	6 14	26 46	3 9	6 30	2 39	
6		5 23	6 38	6 37	23 41	3 44	7 26	2 22	
F	1 S. aft. Easter	Low S.	6 40	6 59	19 28	4 6	8 17	2 4	
8		5 19	6 42	7 22	14 28	4 25	9 5	1 47	
9		5 18	6 43	7 44	8 58	4 35	9 48	1 30	
10	Ox. & Ca. T. beg.	5 16	6 45	8 6	3 13	4 44	10 28	1 14	
11		5 14	6 47	8 28	2 n 34	4 56	11 9	0 57	
12		5 12	6 49	8 50	8 13	☾ sets	11 50	0 41	
13		5 10	6 51	9 12	13 33	8 a 1	0 a 31	0 26	
F	2 S. aft. Easter.	5 8	6 53	9 33	18 21	9 14	1 13	0 10	
15		5 6	6 55	9 55	22 28	10 29	1 59	o aft. 5	
16		5 4	6 57	10 16	25 39	11 37	2 46	0 20	
17	Easter T. begins	5 2	6 59	10 37	27 44	morn	3 38	0 34	
18		5 0	7 1	10 58	28 34	0 41	4 30	0 48	
19	Alphege	4 59	7 3	11 19	28 1	1 39	5 24	1 2	
20		4 57	7 5	11 39	26 3	2 20	6 16	1 15	
F	3 S. aft. Easter	4 55	7 6	12 0	22 45	2 48	7 8	1 28	
22		4 53	7 8	12 20	18 11	3 11	7 58	1 40	
23	St. George	4 51	7 10	12 40	12 36	3 29	8 48	1 52	
24		4 49	7 12	13 0	6 11	3 42	9 37	2 4	
25	St. Mark	Pra. Mary born		13 10	0 s 42	3 56	10 27	2 14	
26		4 46	7 16	13 39	7 46	4 9	11 18	2 25	
27		4 44	7 17	13 58	14 31	☾ rises	morn	2 35	
F	4 S. aft. Easter	4 42	7 18	14 17	20 25	9 a 10	0 14	2 44	
29		4 40	7 21	14 35	24 59	10 44	1 13	2 54	
30		4 38	7 23	14 54	27 45	morn	2 16	3 2	
Days	Day increaf.	Length of day	Helioc. long. ♀	Helioc. long. ♂	Helioc. long. ♂	Helioc. long. ☉	Helioc. long. ♀	Helioc. long. ♀	☾ rises
1	9 11	12 55	25 44	18 6	25 11	7 11	53 19	5 18	m 57
7	5 35	13 19	25 55	18 34	28 44	17 47	28 44	5 46	1 2
13	5 57	13 41	26 6	19 3	0 59	23 39	8 m 21	22 15	0 40
19	6 21	14 5	26 16	19 32	3 52	29 31	17 57	9 11	0 17
25	6 42	14 26	26 27	20 1	6 44	5 m 21	27 31	27 1	11 a 56

1782

April.

15

Days	Day lig. begins	Day lig. ends	Durat. twilig.	Pl. (s) node	h's latitude	u's latitude	δ's latitude	♀'s latitude	♂'s latitude
1	3 32	8 28	2 C	16V34	1 n 8	0 n 30	0 n 50	6 n 42	0 s 15
7	3 16	8 44	2 4	16 18	1 8	0 30	0 53	5 23	1 27
13	3 0	9 C	2 9	15 56	1 8	0 30	0 55	4 4	2 16
19	2 43	9 17	2 14	15 37	1 8	0 29	0 57	2 49	2 42
25	2 26	9 34	2 20	15 18	1 8	0 29	0 59	1 41	2 47
Days	☉'s longitude	☌'s long.	☌'s latitude	h's long.	u's long.	δ's long.	♀'s long.	♂'s long.	☌'s long.
1	V 11 52 58	25M 59	3 s 24	1V 20	28 42	27 8 49	24 X 22	18 X 32	
2	12 51 59	10 37	4 19	1 21	28 44	28 28	23 59	18 44	
3	13 50 58	24 57	4 56	1 22	28 47	29 8	23 38	19 4	
4	14 49 57	8 56	5 15	1 22	28 49	29 48	23 20	19 33	
5	15 48 53	22 33	5 16	1 23	28 51	0 II 28	23 5	20 5	
6	16 47 47	5 49	5 0	1 23	28 53	1 8	22 53	20 38	
F 7	17 46 40	18 46	4 28	1 24	28 55	1 48	22 45	21 13	
8	18 45 31	1 X 27	3 44	1 24	28 57	2 27	22 39	21 52	
9	19 44 20	13 53	2 51	1 24	28 58	3 7	22 36	22 36	
10	20 43 8	26 7	1 50	1 R 24	28 59	3 47	22 35	23 27	
11	21 41 54	8 V 12	0 45	1 24	28 59	4 27	22 D 35	24 18	
12	22 40 38	20 10	0 n 22	1 24	29 0	5 7	22 36	25 13	
13	23 39 20	2 8 2	1 26	1 23	29 0	5 47	22 38	26 11	
F 14	24 38 0	13 51	2 27	1 23	29 0	6 26	22 44	27 12	
15	25 36 38	25 40	3 22	1 22	29 R 0	7 6	22 53	28 16	
16	26 35 14	7 II 29	4 8	1 22	29 0	7 45	23 4	29 21	
17	27 33 48	19 23	4 43	1 21	29 0	8 26	23 17	0 V 30	
18	28 32 19	1 25	5 6	1 20	29 0	9 4	23 32	1 41	
19	29 30 48	13 39	5 16	1 19	28 59	9 44	23 51	2 54	
20	30 29 15	26 8	5 12	1 19	28 59	10 23	24 11	4 9	
F 21	1 27 40	8 Ω 57	4 52	1 18	28 58	11 3	24 33	5 27	
22	2 26 2	22 8	4 17	1 17	28 56	11 42	24 56	6 47	
23	3 24 22	5 M 45	3 26	1 16	28 54	12 22	25 20	8 9	
24	4 22 41	19 49	2 21	1 14	28 52	13 1	25 45	9 33	
25	5 20 58	4 19	1 5	1 12	28 50	13 41	26 12	10 59	
26	6 19 13	19 10	0 s 16	1 10	28 48	14 26	26 41	12 27	
27	7 17 25	4 M 18	1 38	1 9	28 47	14 59	27 12	13 57	
F 28	8 15 36	19 32	2 54	1 7	28 45	15 35	27 44	15 28	
29	9 13 45	4 42	3 56	1 5	28 43	16 18	28 18	17 2	
30	10 11 53	19 40	4 42	1 4	28 41	16 57	28 53	18 38	
Days	u's rises	δ's sets	♀ rises	♂ rises	h's declin.	u's declin.	δ's declin.	♀'s declin.	♂'s declin.
1	1 m 18	10 a 55	4 m 26	4 m 43	22 s 20	22 s 58	20 n 31	3 n 55	4 s 46
7	0 57	10 56	4 8	4 46	22 20	22 58	21 25	2 4	4 49
13	0 36	10 55	3 53	4 38	22 19	22 58	22 12	0 49	3 36
19	0 13	10 55	3 40	4 29	22 19	22 59	22 54	0 8	1 10
25	11 48	10 54	3 27	4 21	22 19	22 59	23 27	0 2	1 n 48

The LUNATIONS.

Last quarter the 4th day at 12 minutes past 9 morning,
 New Moon the 12th day at 11 minutes past 10 morning,
 First quarter the 20th day at 7 minutes past 9 morning,
 Full Moon the 27th day at 29 minutes before 1 morning.

M	Sundays & other	☉	☉	☉'s	(☉'s	☾ rises	(☾	Clock
D	rema.k. days	rises	sets	declin.	declin.	& sets	South	aft. ☉
1	St. Phil. & Jam.	4 37	7 24	15 n 12	28 s 32	o m 10	3 m 22	3 10
2		4 35	7 26	15 30	27 23	1 11	4 26	3 17
3	Inv. of the Crofs	4 33	7 28	15 47	24 35	1 50	5 25	3 24
4		4 32	7 30	16 5	20 34	2 17	6 19	3 30
F	Rogat. Sunday	4 30	7 32	16 22	15 41	2 37	7 8	3 36
6	St. John a. p. Lat	4 28	7 33	16 39	10 16	2 51	7 53	3 41
7		4 27	7 35	16 56	4 34	3 2	8 35	3 46
8		4 25	7 36	17 12	1 n 12	3 11	9 15	3 50
9	Ascension	4 23	7 38	17 28	6 51	3 21	9 54	3 53
10		4 22	7 40	17 44	12 14	3 32	10 34	3 56
11		4 20	7 41	17 59	17 10	3 44	11 16	3 58
F	S. aft. Ascension	4 19	7 43	18 14	21 27	☾ sets	o a 1	3 59
13	Easter T. ends	4 17	7 44	18 29	24 53	9 a 33	o 47	4 0
14		4 15	7 46	18 44	27 15	10 40	1 37	4 0
15		4 14	7 47	18 58	28 23	11 37	2 29	4 0
16	Oxi. Term ends	4 12	7 49	19 12	28 10	morn	3 21	3 59
17		4 11	7 50	19 25	26 34	o 21	4 14	3 58
18		4 10	7 52	19 39	23 39	o 54	5 5	3 56
F	Whit-Sunday	Q. Charl. born		Dunst.	19 32	1 17	5 54	3 54
20	Whit-Monday	4 7	7 54	20 4	14 24	1 35	6 42	3 51
21	Whit-Tuesday	4 6	7 56	20 16	8 27	1 50	7 29	3 48
22	Ember Week	Sts. Eliz. born		20 28	1 55	2 3	8 16	3 44
23		4 3	7 58	20 40	4 s 55	2 15	9 5	3 39
24		4 2	7 59	20 51	11 40	2 27	9 58	3 35
25		4 0	8 1	21 2	17 53	2 44	10 54	3 29
F	Trinity Sunday	Agustín	8 2	21 12	23 5	3 3	11 56	3 23
27	Venerable Bede	3 58	8 3	21 22	26 42	☾ rises	morn	3 17
28		3 57	8 4	21 32	28 21	10 a 54	1 1	3 10
29	K. Ch. II. rest.	Ox. T. b.	8 5	21 41	27 56	10 45	2 7	3 3
30	Corpus Christi.	3 55	8 6	21 50	25 38	morn	3 10	2 55
31	Trin. Term beg.	3 54	8 7	21 59	21 52	o 17	4 8	2 46
Days	Day	Length	Helioc.	Helioc.	Helioc.	Helioc.	Helioc.	h
	increaf.	of day	long. h	long. 1	long. ♂	long. ⊖	long. ♀	rises
1	7 4	14 48	26 f 58	20 f 35	9 36	11 m 10	7 f 4	17 38
7	7 24	15 8	26 49	21 2	12 24	16 58	16 35	11 16
13	7 43	15 27	27 0	21 31	15 13	2 46	26 6	9 31
19	8 1	15 45	27 10	22 1	18 0	28 32	5 36	13 8
25	8 17	16 12	27 20	22 30	20 45	4 f 18	15 5	20 12

Days	Day lig. begins	Day lig. ends	Durat. twilig.	Pl. ☾'s node	h's latitude	☿'s latitude	♂'s latitude	♀'s latitude	♂'s latitude
1	2 7	9 55	2 31	14° 59'	1 n 9	0 n 20	1 n 1	0 n 41	2 s 31
7	1 45	10 18	2 43	14 40	1 9	0 28	1 2	0 s 9	1 57
13	1 20	10 45	3 1	14 21	1 9	0 28	1 4	0 51	1 6
19	0 48	11 20	3 27	14 2	1 9	0 28	1 5	1 26	0 5
25	0	All day light		13 42	1 0	0 27	1 6	1 54	0 n 36

Days	☉'s longitude	☾'s long.	♂'s latitude	h's long.	☿'s long.	♂'s long.	♀'s long.	♂'s long.
1	8 11 10 0	4 16	5 s 8	1 2	28 39	17 37	29 29	20 16
7	12 8 4	18 28	5 14	1 0	28 36	18 16	0 7	21 56
13	13 6 8	2 12	4 2	0 58	28 32	18 55	0 46	23 37
19	14 4 10	15 29	4 34	0 56	28 29	19 34	1 26	25 20
F	15 2 11	28 22	3 57	0 53	28 20	20 13	2 7	27 5
6	16 0 11	10 55	3 1	0 51	28 21	20 52	2 49	28 53
7	16 58 9	23 12	2 2	0 48	28 17	21 31	3 32	0 42
8	17 56 6	5 16	0 59	0 45	28 13	22 10	4 15	2 33
9	18 54 2	17 11	0 n 6	0 43	28 8	22 49	4 59	4 26
10	19 51 57	29 2	1 10	0 40	28 4	23 28	5 44	6 20
11	20 49 50	10 50	2 11	0 37	28 0	24 7	6 30	8 16
F	21 47 42	22 38	3 6	0 34	27 56	24 46	7 17	10 15
13	22 45 33	4 29	3 53	0 31	27 51	25 25	8 5	12 17
14	23 43 21	16 23	4 31	0 28	27 46	26 4	8 54	14 19
15	24 41 9	28 24	4 56	0 25	27 41	26 43	9 44	16 25
16	25 38 55	10 31	5 9	0 22	27 36	27 22	10 34	18 28
17	26 36 38	22 50	5 7	0 18	27 31	28 11	11 24	20 34
18	27 34 21	5 22	4 51	0 15	27 25	28 40	12 15	22 42
F	28 32 2	18 9	4 21	0 12	27 20	29 19	13 6	24 53
20	29 29 41	1 16	3 36	0 8	27 14	29 58	13 58	27 3
21	II 0 27 19	14 45	2 38	0 5	27 8	0 37	14 51	29 14
22	1 24 56	28 38	1 29	0 1	27 1	1 16	15 45	II 26
23	2 22 30	12 55	0 13	29 58	26 55	1 54	16 40	3 38
24	3 20 4	27 36	1 s 6	29 54	26 49	2 33	17 35	5 51
25	4 17 36	12 36	2 22	29 50	26 42	3 12	18 31	8 2
F	5 15 6	27 48	3 29	29 46	26 35	3 51	19 27	10 12
27	6 12 36	13 1	4 20	29 43	26 28	4 30	20 23	12 22
28	7 10 5	28 6	4 54	29 39	26 20	5 8	21 20	14 31
29	8 7 32	12 53	5 7	29 35	26 13	5 46	22 17	16 39
30	9 4 58	27 14	4 59	29 31	26 6	6 25	23 15	18 45
31	10 2 24	11 6	4 35	29 27	25 58	7 3	24 13	20 50

Days	☿'s rises	♂'s sets	♀'s rises	♂'s rises	h's declin.	☿'s declin.	♂'s declin.	♀'s declin.	♂'s declin.
1	11 a 23	10 a 51	3 m 16	4 m 15	22 s 19	22 s 59	23 n 54	0 n 25	5 n 35
7	10 58	10 48	3 5	4 9	22 19	22 59	24 14	1 17	9 54
13	10 33	10 42	2 54	4 3	22 19	22 59	24 27	2 26	14 29
19	10 7	10 36	2 43	sets	22 19	22 59	24 32	3 51	18 56
25	9 40	10 30	2 32	8 a 17	22 19	22 58	24 31	5 30	23 54

The LUNATIONS.

Last quarter the 2d day at 19 minutes past 9 at night,
 New Moon the 11th day at 25 minutes past 1 morning,
 First quarter the 18th day at 52 minutes past 4 afternoon,
 Full Moon the 25th day at 32 minutes past 7 morning.

M D	Sundays & other remark. days	☉ rises	☉ sets	☉'s declin.	☾'s declin.	☾ rises & sets	☾ South	Clock aft. ☉	
1	Nicomede	3 53	8 8	22 n 7	17 a 4	o m 40	5 m 1	2 38	
F 1	Sun. aft. Trin	3 52	8 9	22 15	11 40	o 55	5 48	2 20	
3		3 51	8 10	22 23	5 57	1 7	6 31	2 10	
4	K. Geo. III. born	3 50	8 10	22 30	o 8	1 17	7 12	2 0	
5	Fr. Ern. Aug. bor	Bonifa.	8 11	22 36	5 n 34	1 27	7 52	1 50	
6		3 49	8 12	22 43	11 2	1 37	8 31	1 42	
7		3 49	8 12	22 48	16 3	1 49	9 12	1 37	
8		3 48	8 13	22 54	20 29	2 2	9 55	1 20	
F 2	Sun. aft. Trin	3 47	8 14	22 59	24 7	2 22	10 42	1 14	
10	Prs. Amelia bor	3 47	8 14	23 4	26 45	2 47	11 30	1 0	
11	St. Barnabas	3 46	8 15	23 8	28 10	☾ sets.	o a 21	o 50	
12		3 46	8 15	23 12	28 15	10 a 18	1 15	o 38	
13		3 45	8 16	23 15	26 56	10 53	2 8	o 26	
14		3 45	8 16	23 18	24 16	11 20	2 59	o 17	
15		3 44	8 16	23 21	20 24	11 38	3 48	o 0	
F 3	Sun. aft. Trin.	3 44	8 16	23 23	15 31	11 53	4 35	bef. 12	
17	St. Alban	3 43	8 17	23 25	9 50	morn.	5 21	o 24	
18		3 43	8 17	23 26	3 36	o 5	6 6	o 38	
19	Trin. Termend	3 43	8 17	23 27	2 s 58	o 17	6 52	o 50	
20	Tr. Edw. K. WS.	3 43	8 17	23 28	9 33	o 28	7 41	1 0	
21	Longest day	3 43	8 17	23 28	15 47	o 42	8 33	1 17	
22		3 43	8 17	23 28	21 14	o 58	9 31	1 30	
F 4	Sun. aft. Trin.	3 43	8 17	23 27	25 25	1 23	10 34	1 44	
24	St. John Bapt.	3 43	8 17	23 26	27 52	2 2	11 40	1 50	
25		3 43	8 17	23 25	28 17	☾ rises	morn	2 0	
26		3 43	8 16	23 23	26 41	10 a 9	o 46	2 20	
27		3 44	8 16	23 21	23 22	10 36	1 47	2 30	
28		3 44	8 16	23 18	18 48	10 54	2 43	2 40	
29	St. Peter.	3 44	8 15	23 15	13 25	11 8	3 34	2 50	
F 5	Sun. aft. Trin	3 45	8 15	23 11	7 38	11 19	4 20	3 0	
Days	Day increas.	Length of day	Helioc. long. ♀	Helioc. long. ♀	Helioc. long. ♂	Helioc. long. ☉	Helioc. long. ♀	Helioc. long. ♂	h rises
1	8 31	16 15	27 34	23 1	23 58	11 0	26 8	2 54	9 a 1
7	8 41	16 25	27 44	23 30	26 42	16 44	5 37	4 12	8 5
13	8 47	16 31	27 55	23 59	29 24	22 28	15 6	29 50	8 2
19	8 50	16 34	28 6	24 25	29 6	28 12	24 36	21 25	sets.
25	o dec. 1	16 33	28 17	24 57	4 47	3 55	4 6	10 16	5 m 20

1782.

June.

19

Clock
aft. ☉

bef. 12

☉ 2

☉ 3

☉ 5

☉ 7

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☉ 41

☉ 43

☉ 45

☉ 47

☉ 49

☉ 51

Days	Day lig. begins	Day lig. ends	Durat. twilig.	Pl. ☉'s node	h's latitude	☿'s latitude	♂'s latitude	♀'s latitude	♂'s latitude
1				13 ♀ 21	1 n 7	0 n 26	1 n 7	2 s 16	1 n 47
7				13 1 1	7 0	26 1	8 2	29 2	4 4
13	All	day-	light.	12 42 1	7 0	25 1	8 2	38 1	53 1
19				12 23 1	7 0	24 1	9 2	41 1	19 1
25				12 4 1	7 0	23 1	9 2	40 0	22 0
Days	☉'s longitude	☉'s long.	☉'s latitude	h's long.	☿'s long.	♂'s long.	♀'s long.	♂'s long.	♀'s long.
1	110 59 50	24 29	3 s 56	29 23	25 50	7 42	25 12	22 51	51 1
F	11 57 15	7 25	3 6 29	19 25	43 8	21 26	11 24	51 24	51 24
3	12 54 40	19 57	2 8 29	15 25	36 9	0 27	10 26	49 26	49 26
4	13 52 4	2 11	1 56 29	10 25	28 9	38 28	10 28	46 28	46 28
5	14 49 27	14 12	0 2 29	6 25	21 10	17 29	10 0	41 10	41 10
6	15 46 50	26 4	1 n 1 29	2 25	14 10	56 0	8 10	2 31	31 2
7	16 44 12	7 52	2 1 28	57 25	6 11	34 1	10 4	19 4	19 4
8	17 41 34	19 39	2 56 28	53 24	59 12	13 2	11 6	5 6	5 6
F	18 38 56	1 30	3 43 28	49 24	51 12	51 3	12 7	49 7	49 7
10	19 36 17	13 26	4 21 28	45 24	44 13	29 4	13 9	31 9	31 9
11	20 33 37	25 28	4 47 28	40 24	36 14	8 5	15 11	10 11	10 11
12	21 30 56	7 39	5 0 28	36 24	29 14	46 6	16 12	46 12	46 12
13	22 28 15	19 59	5 0 28	31 24	21 15	25 7	18 14	19 14	19 14
14	23 25 33	2 29	4 46 28	27 24	13 16	3 8	20 15	50 15	50 15
15	24 22 51	15 10	4 17 28	22 24	6 16	41 9	23 17	19 17	19 17
F	25 20 7	28 4	3 35 28	18 23	58 17	20 10	26 18	45 18	45 18
17	26 17 23	11 14	2 41 28	13 23	50 17	58 11	29 20	8 20	8 20
18	27 14 38	24 40	1 36 28	9 23	43 18	36 12	32 21	28 21	28 21
19	28 11 52	8 26	0 25 28	4 23	35 19	15 13	35 22	46 22	46 22
20	29 9 5	2 31	0 50 28	0 23	27 19	53 14	38 24	1 24	1 24
21	30 6 18	5 56	2 3 27	56 23	20 20	31 15	42 25	12 25	12 25
22	1 3 30	21 39	3 9 27	51 23	13 21	10 16	46 26	21 26	21 26
F	2 0 42	6 35	4 3 27	47 23	5 21	48 17	51 27	27 27	27 27
24	2 57 53	21 55	4 41 27	42 22	58 22	26 18	56 28	30 28	30 28
25	3 55 4	6 31	4 59 27	38 22	51 23	5 20	1 29	30 29	30 29
26	4 52 15	21 13	4 57 27	34 22	44 23	43 21	6 0	27 0	27 0
27	5 49 26	5 33	4 37 27	30 22	37 24	21 22	11 1	20 1	20 1
28	6 46 37	19 27	4 0 27	26 22	30 25	0 23	17 2	10 2	10 2
29	7 43 48	2 53	3 11 27	21 22	23 25	38 24	22 2	56 2	56 2
F	8 40 59	15 52	2 13 27	17 22	16 26	16 25	28 3	39 3	39 3
Days	☿'s rises	♂'s sets	♀'s rises	♂'s sets	h's declin.	☿'s declin.	♂'s declin.	♀'s declin.	♂'s declin.
1	9 a 8	10 a 18	2 m 16	9 a 22	22 s 20	22 s 58	24 n 21	7 n 39	25 n 4
7	8 40	10 9	2 5 9	51 22	20 22	57 24	5 9	34 25	28 28
13	sets	9 58	1 53 10	1 22	20 22	56 23	43 11	28 24	35 24
19	3 m 33	9 46	1 43 10	1 22	20 22	54 23	14 13	22 22	50 22
25	3 5	9 33	1 32 9	47 22	20 22	43 22	39 15	12 20	38 20

The LUNATIONS.

Last quarter the 2d day at 46 minutes past 11 morning,
 New Moon the 10th day at 59 minutes past 2 afternoon,
 First quarter the 17th day at 55 minutes past 10 at night,
 Full Moon the 24th day at 21 minutes past 3 afternoon.

M D	Sundays & other remark. days	☉ rises	☉ sets	☉'s declin.	☾'s declin.	☾ rises & sets	☾ South	Clock bef. ☉	
1		3 45	8 14	23 n 7	1 s 42	11 a 30	5 m 2	3 20	
2	Visit. Cam. Com.	3 46	8 14	23 3	4 n 9	11 40	5 44	3 32	
3	Dog days begin	3 46	8 13	22 58	9 44	11 51	6 24	3 43	
4	Transf. St. Mart.	3 47	8 13	22 53	14 54	morn.	7 5	3 54	
5	Old Midf. day	Camb. T. ends		22 47	19 3	0 4	7 4	4	
6	Oxford Act	3 48	8 11	22 41	23 21	0 19	8 31	4 19	
F 6	Sun. aft. Trin.	Th. a Becket	11	22 35	26 14	0 42	9 20	4 24	
8		3 50	8 10	22 28	27 57	1 14	10 11	4 34	
9		3 51	8 9	22 21	28 22	1 57	11 4	4 43	
10		3 51	8 8	22 14	27 21	☾ sets	11 57	4 52	
11		3 52	8 7	22 6	24 57	9 a 17	0 a 49	5 0	
12		3 53	8 6	21 58	21 16	9 38	1 40	5 8	
13	Oxf. Term ends	3 54	8 5	21 49	16 31	9 55	2 28	5 16	
F 7	Sun. aft. Trin.	3 55	8 4	21 40	10 57	10 8	3 15	5 23	
15	Swithin	3 56	8 3	21 31	4 48	10 19	4 0	5 29	
16		3 57	8 2	21 21	1 s 40	10 32	4 46	5 35	
17		3 58	8 1	21 11	8 9	10 45	5 33	5 40	
18		4 0	7 59	21 0	14 21	10 59	6 22	5 44	
19		4 1	7 58	20 49	19 54	11 19	7 16	5 49	
20	Margaret	4 2	7 57	20 38	24 22	11 49	8 15	5 51	
F 8	Sun. aft. Trin.	4 3	7 56	20 27	27 20	morn.	9 17	5 55	
22	Mary Magd.	4 5	7 54	20 15	28 26	0 32	10 23	5 58	
23		4 6	7 53	20 3	27 34	1 38	11 25	6	
24		4 7	7 52	19 50	24 51	☾ rises	morn.	6	
25	St. James	4 9	7 50	19 37	20 41	8 a 55	0 24	6	
26	St. Anne, M. V. M.	10	7 49	19 24	15 29	9 9	1 18	6	
27		4 12	7 48	19 10	9 41	9 22	2 7	6	
F 9	Sun. aft. Trin.	4 13	7 46	18 57	3 39	9 32	2 52	6	
29		4 15	7 44	18 42	2 n 22	9 44	3 34	6	
30		4 16	7 43	18 28	8 9	9 54	4 17	5 5	
31		4 18	7 41	18 13	13 32	10 7	4 58	5 5	
Days	Day decreas.	Length of day	Helioc. long. ♀	Helioc. long. ♂	Helioc. long. ♂	Helioc. long. ☾	Helioc. long. ♀	Helioc. long. ♂	h sets
1	0	5 16 29	28 f 28	25 f 29	7 Ω 28	9 f 38	13 X 37	27 11 32	3 m
7	0	12 16 22	28 38	25 59	10 8	15 21	23 8	14 f 6	2 3
13	0	23 16 11	28 49	26 28	12 47	21 5	2 Y 41	0 f 43	2 1
19	0	27 15 5	29 0 26	58 15	26 45	12 13	18 9	1 4	2 5
25	0	53 15 4	29 11 27	27 13	4 2	32 21	4 8	7 16	1 2

Days	Day lig. begins	Day lig. ends	Durat. twilig.	Pl. C's node	h's latitude	4's lat. tude	8's latitude	9's latitude	8's latitude
1				11 45	1 n 6	0 n 22	1 n 9	2 s 35	0 s 54
7	All	day-	light	11 26	1 5	0 21	1 9	2 26	2 20
13				11 7	1 5	0 20	1 9	2 14	3 46
19				10 48	1 4	0 19	1 9	2 0	4 45
25				10 29	1 3	0 18	1 9	1 44	4 52

Days	☉'s longitude	☉'s long.	☉'s latitude	h's long.	4's long.	8's long.	9's long.	8's long.
1	15 9 38 10	28 27	1 s 11	27 13	22 9	26 55	26 34	4 17
2	10 35 21	10 42	0 6	27 9	22 3	27 33	27 40	4 54
3	11 32 34	22 43	0 n 57	27 5	21 56	28 11	28 46	5 24
4	12 29 47	4 35	1 57	27 0	21 49	28 50	29 52	5 49
5	13 26 59	16 24	2 52	26 56	21 42	29 28	0 11 53	6 10

6	14 24 13	28 14	3 39	26 52	21 36	0 6	2 5	6 28
F 7	15 21 27	10 11 8	4 17	26 48	21 29	0 44	3 12	6 42
8	16 18 41	22 11	4 44	26 44	21 23	1 22	4 19	6 52
9	17 15 56	4 23	4 58	26 40	21 17	2 0	5 26	6 57
10	18 13 11	16 4	4 59	26 36	21 11	2 38	6 33	6 54

11	19 10 26	29 22	4 45	26 32	21 5	3 16	7 40	6 48
12	20 7 41	12 9	4 16	26 28	20 59	3 55	8 48	6 38
13	21 4 57	25 8	3 35	26 25	20 53	4 33	9 56	6 23
F 14	22 2 13	8 17	2 41	26 21	20 48	5 11	4 6	4
15	22 59 28	21 39	1 37	26 17	20 43	5 49	12 12	5 40

16	23 50 45	5 12	0 27	26 14	20 37	6 27	13 20	5 11
17	24 54 1	18 59	0 s 46	26 10	20 32	7 5	14 28	4 38
18	25 51 17	2 55	1 57	26 6	20 27	7 43	15 36	4 3
19	26 48 34	17 12	3 3	26 3	20 22	8 21	16 44	3 25
20	27 45 50	1 37	3 57	26 0	20 18	8 59	17 53	2 45

F 21	28 43 7	16 10	4 37	25 56	20 13	9 37	19 1	2 3
22	29 40 25	0 47	4 59	25 53	20 9	10 15	20 10	1 20
23	0 37 43	15 21	5 1	25 49	20 4	10 54	21 18	0 37
24	1 35 1	29 44	4 44	25 46	20 0	11 32	22 27	29 55
25	2 32 20	13 51	4 10	25 43	19 55	12 10	23 36	29 13

26	3 29 40	27 36	3 22	25 40	19 51	12 48	24 45	28 34
27	4 27 1	10 57	2 24	25 37	19 48	13 26	25 54	27 59
1	5 24 23	23 54	1 20	25 34	19 45	14 5	27 4	27 26
29	6 21 47	6 29	0 14	25 31	19 42	14 43	28 13	26 57
30	7 19 10	18 46	0 n 51	25 28	19 39	15 21	29 22	26 34
31	8 16 35	0 48	1 53	25 25	19 36	16 0	0 32	26 17

Days	☉'s sets	☉'s sets	☉'s rises	☉'s sets	h's declin.	4's declin.	8's declin.	9's declin.	8's declin.
1	2 m 37	9 a 20	1 m 24	9 26	22 s 20	22 52	21 n 57	16 n 54	18 n 20
7	2 11	9 6	1 17	8 57	22 20	22 50	21 9	18 26	16 20
13	1 44	8 52	1 11	8 21	22 21	22 49	20 17	19 45	15 3
19	1 17	8 38	1 9	rises	22 21	22 48	19 20	20 49	14 47
25	0 51	8 23	1 9	4 m 22	22 21	22 47	18 17	21 35	15 35

The LUNATIONS.

Last quarter the 1st day at 22 minutes past 4 morning,
 New Moon the 9th day at 9 minutes past 3 morning,
 First quarter the 16th day at 58 minutes past 3 morning,
 Full Moon the 23d day at 16 minutes past 1 morning,
 Last quarter the 30th day at 28 minutes past 10 at night.

M D	Sundays & other remark. days	☉ rises	☉ sets	☉'s declin	☾'s declin.	☾ rises & sets	☾ South	Clock bef. ☉	
1	Lammas	4 19	7 40	17 n 58	18 n 22	10 a 20	5 m 40	5 52	
2		4 21	7 38	17 43	22 27	10 41	6 23	5 48	
3		4 22	7 37	17 27	25 38	11 9	7 11	5 44	
F 4	10 S. aft. Trin.	4 24	7 35	17 11	27 42	11 47	8 1	5 39	
5		4 25	7 34	16 55	28 30	morn.	8 53	5 33	
6	Transfiguration	4 27	7 32	16 38	27 54	0 38	9 46	5 27	
7	Name of Jesus	4 29	7 30	16 22	25 52	1 45	10 40	5 20	
8		4 30	7 29	16 5	22 29	3 2	11 33	5 13	
9		4 32	7 27	15 47	17 55	☾ sets	0 a 24	5 5	
10	St. Laurence.	4 34	7 25	15 30	12 24	8 a 16	1 12	4 56	
F 11	11 S. aft. Trin.	Prs. Brunsw. bo. Dog-days end				8 29	1 58	4 47	
12	Pr. Wales born	O. Lammas day				8 40	2 44	4 38	
13		4 39	7 20	14 36	6 53	8 52	3 31	4 27	
14		4 41	7 18	14 17	13 13	9 6	4 20	4 17	
15		4 43	7 16	13 58	13 55	9 24	5 12	4 5	
16		4 44	7 15	13 40	23 36	9 50	6 9	3 53	
17	Pr. Fred. born	4 46	7 13	13 20	26 54	10 27	7 9	3 41	
F 18	12 S. aft. Trin.	4 48	7 11	13 1	28 29	11 24	8 13	3 28	
19		4 50	7 9	12 41	28 11	morn.	9 15	3 15	
20		4 52	7 7	12 22	26 2	0 37	10 15	3 1	
21	Pr. Wm. Hen. b.	4 54	7 6	12 2	22 21	2 4	11 11	2 46	
22		4 55	7 4	11 42	17 30	3 33	morn.	2 31	
23		4 57	7 2	11 21	11 53	☾ rises	0 1	2 16	
24	St. Bartholomew	4 59	7 0	11 1	5 52	7 a 42	0 48	2 0	
F 25	13 S. aft. Trin.	5 1	6 58	10 40	0 n 16	7 55	1 32	1 44	
26		5 3	6 56	10 19	6 15	8 6	2 15	1 27	
27		5 5	6 54	9 58	11 52	8 16	2 57	1 10	
28	St. Augustine.	5 7	6 52	9 37	16 57	8 30	3 39	0 53	
29	Behead. J. Bap.	5 9	6 51	9 15	21 21	8 49	4 23	0 36	
30		5 10	6 49	8 54	24 51	9 12	5 5	0 18	
31		5 12	6 47	8 32	27 18	9 45	5 57	castr. 1	
Day	Day decreas.	Length of day	Helioc. long. ♀	Helioc. long. ♀	Helioc. long. ♂	Helioc. long. ♂	Helioc. long. ♀	Helioc. long. ♀	☾ sets
1	1 13	15 21	29 1 24	28 1 1	21 19	9 9	2 8 59	3 1 5	0 m 51
7	1 33	15 34	29 34	28 31	23 46	14 59	12 36	29 42	0 27
13	1 53	14 41	29 45	29 0	26 24	20 45	22 13	1 8 32	0 3
19	2 15	14 19	29 56	29 30	29 12	26 31	1 11 51	7 11 59	11 a 40
25	2 37	13 57	0 1 7	29 59	1 1 38	2 1 19	11 31	15 56 20	11 18

1782.

August.

23

Days	Day lig. begins	Day lig. ends	Durat. twilig.	Pl. (s node	h's latitude	u's latitude	s's latitude	q's latitude	q's latitude
1	1 23	10 36	2 56	10 7	1 n 2	0 n 17	1 n 9	1 s 23	3 s 46
7	1 46	10 13	2 43	9 48	1 1	0 16	1 9	1 3	2 12
13	2 7	9 52	2 32	9 29	1 0	0 15	1 9	0 44	0 35
19	2 27	9 32	2 23	9 10	0 59	0 14	1 8	0 25	0 n 44
25	2 46	9 13	2 15	8 50	0 58	0 13	1 7	0 6	1 32
Days	o's longitude	l's long.	l's latitude	h's long.	u's long.	s's long.	q's long.	q's long.	q's long.
1	9 14	1 12	8 42	2 n 50	25 23	19 33	16 38	1 42	26 5
2	10 11	20 24	3 32	3 38	25 20	19 31	17 16	2 52	25 D 58
3	11 8	58 6	11 24	4 18	25 18	19 28	17 54	4 2	25 59
F	12 6	29 18	22 4	4 46	25 15	19 26	18 32	5 12	26 6
5	13 4	1 0	30 30	5 2	25 13	19 24	19 11	6 22	26 20
6	14 1	34 12	51 5	5 5	25 11	19 22	19 49	7 32	26 40
7	14 59	9 25	27 4	53 25	9 19	20 20	27 8	43 27	7 7
8	15 56	45 8	19 4	25 25	7 19	18 21	5 9	53 27	41 27
9	16 54	22 21	25 3	44 25	5 19	17 21	43 11	3 28	22 28
10	17 51	59 4	45 2	50 25	4 19	16 22	22 12	14 29	10 29
F	18 49	38 18	17 1	45 25	2 19	15 23	0 13	24 0	4 0
12	19 47	18 2	0 0	33 25	0 19	14 23	38 14	34 1	4 4
13	20 44	59 15	51 0	42 24	59 19	14 24	16 15	45 2	12 12
14	21 42	42 29	49 1	55 24	58 19	14 24	54 16	56 3	26 26
15	22 40	25 13	54 3	1 24	56 19	D 14	25 32	18 7	4 45
16	23 38	9 28	3 3	57 24	55 19	14 26	10 19	18 6	9 9
17	24 35	54 12	16 4	39 24	54 19	14 26	49 20	29 7	38 38
F	25 33	40 26	31 5	3 24	53 19	14 27	27 21	40 9	11 11
19	26 31	27 10	43 5	9 24	52 19	15 28	5 22	51 10	49 49
20	27 29	15 24	49 4	56 24	51 19	15 28	4 24	2 12	31 31
21	28 27	5 8	46 4	26 24	50 19	16 29	21 25	13 14	16 16
22	29 24	56 22	29 3	40 24	49 19	17 29	59 26	24 16	5 5
23	0 22	48 5	55 2	43 24	49 19	18 0	37 27	36 17	56 56
24	1 20	42 19	3 1	39 24	48 19	20 1	15 28	48 19	49 49
F	2 18	38 1	51 0	31 24	48 19	22 1	53 0	0 21	44 44
26	3 16	35 14	22 0	n 37	24 19	24 2	31 1	12 23	40 40
27	4 14	34 26	36 1	43 24	47 19	27 3	9 2	24 25	36 36
28	5 12	35 8	39 2	42 24	47 19	29 3	48 3	36 27	33 33
29	6 10	38 20	33 3	34 24	D 47 19	31 4	26 4	48 29	30 30
30	7 8	42 2	24 4	17 24	47 19	34 5	5 6	0 1	28 28
31	8 6	50 14	17 4	48 24	47 19	36 5	43 7	12 3	26 26
Days	u's sets	s's sets	q's rises.	q's rises.	h's declin.	u's declin.	s's declin.	q's declin.	q's declin.
1	0 m 22	8 a 5	1 m 13	3 m 27	22 s 21	22 s 46	16 n 58	22 n 4	17 n 55
7	11 a 59	7 50	1 20	3 1	22 22	22 46	15 48	22 7	18 36
13	11 36	7 35	1 30	2 57	22 22	22 47	14 32	21 48	19 71
19	11 14	7 20	1 42	3 16	22 23	22 48	13 14	21 7	18 15
25	10 52	7 5	1 57	3 53	22 24	22 49	11 51	20 5	15 43

The LUNATIONS.

New Moon the 7th day at 22 minutes past 2 afternoon,
 First quarter the 14th day at 19 minutes past 9 morning,
 Full Moon the 21st day at 13 minutes past 2 afternoon,
 Last Quarter the 29th day at 1 minute past 5 afternoon.

M D	Sundays & other remark. days	☉ rises	☉ sets	☉'s declin.	☾'s declin.	☾ rises & sets	☾ South	Clock aft. ☉
F 2	14 S. aft. Trin. Lend. bur. 1666	Giles 5 16	6 45 6 43	8 n 10 7 49	28 n 32 28 25	10 a 32 11 33	6 m 48 7 42	0 19 0 38
3		5 18	6 41	7 26	26 53	morn.	8 36	0 57
4		5 20	6 39	7 4	23 57	0 45	9 29	1 17
5		5 22	6 37	6 42	19 45	2 6	10 20	1 36
6		5 24	6 35	6 20	14 29	3 29	11 10	1 56
7	Enurchus	5 26	6 33	5 56	8 23	☾ sets	11 59	2 16
F 9	15 S. aft. Trin.	Nativ. 5 30	6 31 6 29	5 34 5 12	1 46 5 s 2	6 a 55 7 6	0 a 46 1 33	2 36 2 56
10		5 32	6 27	4 49	11 39	7 19	2 24	3 17
11		5 34	6 25	4 26	17 41	7 36	3 16	3 37
12		5 36	6 23	4 3	22 44	8 0	4 13	3 58
13		5 37	6 22	3 40	26 25	8 35	5 13	4 19
14	Holy Cross	5 39	6 20	3 17	28 24	9 25	6 15	4 40
F 16	16 S. aft. Trin.	5 41	6 18	2 54	28 32	10 33	7 17	5 1
16		5 43	6 16	2 31	26 51	11 55	8 17	5 22
17	Lambert	5 45	6 14	2 7	23 36	morn.	9 13	5 43
18	Ember Week	5 47	6 12	1 44	19 7	1 22	10 4	6 4
19		5 49	6 10	1 21	13 46	2 47	10 52	6 25
20		5 51	6 8	0 57	7 54	4 9	11 36	6 46
21	St. Matthew	5 53	6 6	0 34	1 49	☾ rises	morn.	7 7
F 23	17 S. aft. Trin.	K. Geo. III. cor. 5 57	6 2 6 0	Pr. Alfred born 0 s 13	10 n 1 10 n 1	6 a 20 6 31	0 18 1 0	7 28 7 48
24		5 59	6 0	0 36	15 21	6 46	1 42	8 9
25		6 1	5 58	1 0	20 2	7 1	2 26	8 29
26	St. Cyprian	6 3	5 56	1 23	23 52	7 22	3 11	8 50
27		6 5	5 54	1 46	26 41	7 53	3 59	9 10
28		6 7	5 52	2 10	28 20	8 33	4 50	9 30
F 30	18 S. aft. Trin. St. Jerome	St. Michael. 6 11	5 48 5 48	Prs. Ch. Aug. b 2 57	27 40 27 40	9 27 10 35	5 42 6 35	9 49 10 8
Day	Day decreas.	Length of day	Helioc. long. ♀	Helioc. long. ♂	Helioc. long. ♂	Helioc. long. ☾	Helioc. long. ♀	h sets
1	3 3	13 31	0 19	0 34	4 42	9 52	22 11	48 24 29 10 a 53
7	3 27	13 17	0 30	1 3	7 19	14 55	20 30	21 54 10 31
13	3 49	12 45	0 41	1 33	9 56	20 45	12 13	14 41 10 10
19	4 13	12 21	0 52	2 2	12 34	26 37	21 57	4 18 9 49
25	4 37	11 57	1 2	2 32	15 12	2 30	1 41	21 58 0 20

1782.

September.

25

Days	Day lig. begins	Day lig. ends	Durat. twilig.	Pl. ☾'s node	h's latitud	☿'s latitud	♂'s latitud	♀'s latitud	♂'s latitud
1	3 0	8 53	2 8	8 ♀ 28	0 n 57	0 n 12	1 n 6	0 n 15	1 n 53
7	3 22	8 37	2 4	8 9	0 56	0 11	1 5	0 32	1 33
13	3 37	8 25	2 0	7 50	0 55	0 10	1 5	0 47	1 4
19	3 51	8 8	1 58	7 31	0 54	0 9	1 3	1 0	0 27
25	4 4	7 4	1 56	7 12	0 53	0 9	1 2	1 12	0 s 16
Days	☉'s longitude	☾'s long.	☾'s latitud	h's long	☿'s long.	♂'s long.	♀'s long	♂'s long.	♀'s long.
F 1	♏ 9 4 59	26 11 16	5 n 8	24 47	19 43	6 21	8 25	5 11	11
2	10 3 10	8 26	5 14	24 48	19 42	6 59	7 37	7 10	10
3	11 1 23	20 50	5 5	24 48	19 46	7 37	10 50	9 10	10
4	11 59 38	3 33	4 4	24 49	19 50	8 15	12 2	11 10	10
5	12 57 55	16 36	4 3	24 49	19 53	8 53	13 15	13 5	5
6	13 56 13	29 58	3 11	24 50	19 57	9 32	14 27	14 58	58
7	14 54 34	13 38	2 6	24 51	20 10	10 10	15 40	16 49	49
F 8	15 52 52	27 35	0 53	24 52	20 5	10 48	16 52	18 40	40
9	16 51 21	11 45	0 s 25	24 53	20 9	11 26	18 5	20 30	30
10	17 49 48	26 1	1 42	24 54	20 14	12 5	19 18	22 19	19
11	18 48 15	10 22	2 53	24 56	20 18	12 43	20 31	24 7	7
12	19 46 44	24 43	3 53	24 57	20 23	13 21	21 44	25 54	54
13	20 45 16	9 0	4 59	24 58	20 28	14 0	22 57	27 39	39
14	21 43 48	23 12	5 7	25 0	20 33	14 38	24 10	29 24	24
F 15	22 42 22	7 16	5 16	25 2	20 39	15 17	25 23	1 3	3
16	23 40 58	21 9	5 7	25 3	20 44	15 55	26 36	2 50	50
17	24 39 35	4 52	4 40	25 5	20 50	16 34	27 40	4 32	32
18	25 38 14	18 22	3 59	25 7	20 55	17 12	29 2	6 12	12
19	26 36 55	1 39	3 4	25 9	21 1	17 51	0 16	7 52	52
20	27 35 37	14 41	2 7	25 11	21 7	18 29	1 29	9 31	31
21	28 34 21	27 29	2 53	25 14	21 13	19 7	2 43	11 5	5
F 22	29 33 7	10 3	0 n 16	25 16	21 20	19 46	3 56	12 45	45
23	0 31 55	22 24	1 24	25 18	21 27	20 24	5 10	14 21	21
24	1 30 46	4 33	2 26	25 21	21 34	21 2	6 24	15 56	56
25	2 29 38	16 33	3 22	25 24	21 41	21 41	7 38	17 30	30
26	3 28 33	28 27	4 8	25 26	21 49	22 19	8 52	19 2	2
27	4 27 30	10 18	4 43	25 29	21 56	22 58	10 6	20 34	34
28	5 26 30	2 9	5 7	25 32	22 3	23 36	11 20	22 5	5
F 29	6 25 32	4 7	5 17	25 35	22 10	24 15	12 30	23 36	36
30	7 24 37	16 15	5 14	25 38	22 17	24 53	13 48	25 6	6
Days	☿ sets	♂ rises	♀ rises	♂ rises	h's declin.	☿'s declin.	♂'s declin.	♀'s declin.	♂'s declin.
1	10 a 26	4 m 55	2 m 18	4 m 45	22 s 20	22 s 52	10 n 13	18 n 25	11 n 22
7	10 6	4 56	2 36	sets.	22 26	22 55	3 47	16 40	6 39
13	9 47	4 56	2 56	6 a 38	22 28	22 57	7 18	14 38	1 55
19	9 27	4 56	3 15	6 30	22 29	23 1	5 47	12 20	2 s 43
25	9 8	4 56	3 36	6 20	22 30	23 4	4 16	9 50	7 7

The LUNATIONS.

New Moon the 7th day at 1 in the morning,
 First quarter the 13th day at 21 minutes past 4 afternoon,
 Full Moon the 21st day at 17 minutes past 6 morning,
 Last quarter the 29th day at 51 minutes past 10 Morning.

M D	Sundays & other remark. days	☉ rises	☉ sets	☉'s declin.	☾'s declin.	☾ rises & sets	☾ South	Clock aft. ☉	
1	Remigius	6 13	5 46	3 s 20	25 n 11	11 a 50	7 m 28	10 27	
2		6 15	5 44	3 43	21 37	morn.	8 18	10 46	
3		6 17	5 42	4 7	16 47	1 11	9 8	11 4	
4		6 19	5 40	4 30	11 2	2 35	9 57	11 22	
5		6 21	5 38	4 53	4 34	3 58	10 44	11 40	
F 19	S. aft. Trin.	Faith	5 36	5 16	2 s 17	5 23	11 32	11 57	
7		6 25	5 34	5 39	9 10	☾ sets	0 a 22	12 14	
8		6 26	5 33	6 2	15 39	5 a 52	1 15	12 30	
9	St. Denys	6 28	5 31	6 25	21 16	6 13	2 12	12 46	
10	Ox. & Ca. T. beg.	6 30	5 29	6 48	25 32	6 44	3 13	13 2	
11		6 32	5 27	7 11	28 4	7 27	4 15	13 17	
12		6 34	5 25	7 33	28 41	8 31	5 19	13 31	
F 20	S. aft. Trin.	Fr. K. Edward	7 56	7 56	27 24	9 52	6 21	13 45	
14		6 38	5 21	8 18	24 29	11 17	7 18	13 59	
15		6 40	5 19	8 40	20 17	morn.	8 10	14 12	
16		6 42	5 17	9 3	15 10	0 42	8 57	14 24	
17	Etheldred	6 44	5 15	9 25	9 29	2 3	9 41	14 36	
18	St. Luke	6 46	5 13	9 47	3 32	3 20	10 24	14 48	
19		6 48	5 11	10 8	2 n 29	4 36	11 5	14 58	
F 21	S. aft. Trin.	6 50	5 9	10 30	8 19	5 49	11 46	15 9	
21		6 52	5 7	10 51	13 46	☾ rises	morn.	15 18	
22		6 54	5 5	11 13	18 39	5 a 11	0 29	15 27	
23		6 55	5 4	11 34	22 45	5 34	1 13	15 35	
24		6 57	5 2	11 55	25 54	6 0	2 0	15 42	
25	K. G. III. Acces.	Crispin	5 0	12 15	27 55	6 36	2 50	15 49	
26	K. Geo. III. Pio	7 1	4 58	12 36	28 40	7 24	3 41	15 55	
F 22	S. aft. Trin.	7 3	4 56	12 56	28 4	8 23	4 33	16 0	
28	St. Simon & Jude	7 5	4 54	13 16	26 9	9 36	5 24	16 5	
29		7 7	4 52	13 36	22 59	10 53	6 14	16 8	
30		7 8	4 51	13 56	18 41	morn.	7 3	16 11	
31		7 10	4 49	14 16	13 25	0 12	7 50	16 13	
Day	Day decreas.	Length of day	Helioc. long. ♀	Helioc. long. ♂	Helioc. long. ♂	Helioc. long. ⊖	Helioc. long. ♀	Helioc. long. ♂	h sets
1	5 11	11 35	1 13	3 1	17 12	50 8	24 11	26 8	9 a 8
7	5 25	11 9	1 24	3 31	20 20	14 19	21 12	25 11	8 47
13	5 47	10 47	1 35	4 1	23 8	10 16	0 m 57	12 15	8 26
19	6 11	10 23	1 46	4 32	25 4	16 14	10 42	0 m 42	8 6
25	6 33	10 1	1 56	5 0	28 27	2 8	13 20	26 21	7 45

1782.

October.

27

Days	Day lig. begins	Day lig. ends	Durat. twilig.	Pl. (C's node	h's latitude	u's latitude	δ's latitude	♀'s latitude	♂'s latitude
1	4 18	7 42	1 56	6 ♀ 53	on 52	on 8	1 n 1	1 n 20	o s 59
7	4 31	7 29	1 55	6 34	o 51	o 7	1 o	1 26	1 41
13	4 43	7 17	1 54	6 15	o 50	o 6	o 58	1 31	2 18
19	4 55	7 5	1 54	5 56	o 49	o 6	o 57	1 32	2 46
25	5 4	6 55	1 55	5 37	o 48	o 5	o 55	1 31	2 58

Days	☉'s longitude	☽'s long.	♄'s latitude	♅'s long.	♆'s long.	♁'s long.	♀'s long.	♂'s long.
1	8 23 43	28 39	4 n 56	25 f 41	22 f 25	25 12 32	15 12 2	26 35
2	9 22 53	11 21	4 23	25 44	22 33	26 10	16 16	28 3
3	10 22 4	24 25	3 36	25 47	22 42	26 49	17 30	29 30
4	11 21 18	7 12 53	2 36	25 50	22 50	27 28	18 44	om 56
5	12 20 34	21 46	1 25	25 53	22 58	28 7	19 58	2 21

F	13 19 52	6 1	o 7	25 56	23 7	28 45	21 12	3 45
7	14 19 13	20 34	1 s 13	26 o	23 15	29 24	22 26	5 8
8	15 18 35	5 18	2 30	26 3	23 24	o 2	23 40	6 30
9	16 17 59	20 7	3 36	26 7	23 32	o 41	24 55	7 51
10	17 17 26	4 f 53	4 28	26 11	23 41	1 20	26 9	9 12

11	18 16 54	19 29	5 2	26 15	23 50	1 58	27 24	10 32
12	19 16 24	3 51	5 16	26 19	23 59	2 37	28 38	11 50
F	20 15 55	17 56	5 11	26 23	24 9	3 16	29 53	13 6
14	21 15 28	1 42	4 48	26 27	24 18	3 55	1 7	14 21
15	22 15 3	15 10	4 10	26 31	24 28	4 34	2 22	15 35

16	23 14 40	28 20	3 19	26 36	24 37	5 12	3 36	16 47
17	24 14 18	11 15	2 19	26 40	24 47	5 51	4 51	17 57
18	25 13 58	23 56	1 13	26 44	24 57	6 30	6 6	19 5
19	26 13 40	6 25	on 5	26 49	25 7	7 9	7 21	20 12
F	27 13 24	18 43	1 3	26 54	25 15	7 48	8 35	21 16

21	28 13 9	o 52	2 7	26 59	25 28	8 27	9 50	22 17
22	29 12 57	12 54	3 4	27 3	25 38	9 5	11 5	23 16
23	m 0 12 47	24 50	3 53	27 8	25 49	9 44	12 20	24 13
24	1 12 39	6 42	4 31	27 13	25 59	10 23	13 35	25 5
25	2 12 33	18 32	4 58	27 18	26 9	11 2	14 50	25 52

26	3 12 29	o 24	5 11	27 23	26 20	11 41	16 5	26 37
F	4 12 27	12 21	5 12	27 28	26 30	12 20	17 20	27 17
28	5 12 28	24 26	4 59	27 34	26 41	12 59	18 35	27 51
29	6 12 31	6 45	4 32	27 39	26 51	13 38	19 50	28 19
30	7 12 37	19 22	3 51	27 44	27 2	14 17	21 5	28 40

31	8 12 44	2 20	2 58	27 50	27 12	14 56	22 20	28 56
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Days	♄'s sets	♁'s rises	♀'s rises	♂'s sets	♅'s declin.	♆'s declin.	♁'s declin.	♀'s declin.	♂'s declin.
1	8 a 49	4 m 56	3 m 56	6 a 12	22 s 32	23 s 7	2 n 42	7 n 8	11 s 11
7	8 31	4 56	4 17	6 2	22 34	23 11	1 4	4 20	14 50
13	8 13	4 56	4 37	5 53	22 35	23 14	o s 25	1 26	17 59
19	7 54	4 56	4 56	5 42	22 37	23 17	1 58	1 s 31	20 29
25	7 35	4 56	5 16	5 32	22 38	23 20	3 32	4 27	22 8

The LUNATIONS.

New Moon the 5th day at 15 minutes past 11 morning,
 First quarter the 12th day at 20 minutes past 2 morning,
 Full Moon the 20th day at 26 minutes before 1 morning,
 Last quarter the 28th day at 57 minutes past 2 morning.

M D	Sundays & other remark days	☉ rises	☉ sets	☉'s declin.	☾'s declin.	☾ rises & sets	☾ South	Clock aft. ☉	
1	All Saints	7 12	4 47	14 s 35	7 n 18	1 m 34	8 m 37	16 14	
2	Pr. Edw. born	All Soul	4 45	14 54	0 46	2 56	9 23	16 15	
F	23 S. aft. Trin.	Prs. Sophia born	15 13	6 s 5	4 22	10 12	16 14		
4		7 18	4 42	15 32	12 49	5 52	11 5	16 13	
5	Powder Plot	7 19	4 40	15 50	18 56	☾ sets	11 58	16 11	
6	Mich. Term beg	Leonard	4 38	16 8	23 55	4 a 42	0 a 58	16 8	
7	D. Cumb. born	7 23	4 36	16 26	27 15	5 22	2 2	16 4	
8	Prs. Aug. Sop. b.	7 24	4 35	16 43	28 35	6 18	3 7	15 59	
9	Ld. Mayor's day	7 26	4 33	17 0	27 51	7 35	4 12	15 54	
F	24 S. afr. Trin.	7 28	4 31	17 17	25 18	9 2	5 12	15 48	
11	St. Martin	7 29	4 30	17 34	21 19	10 20	6 7	15 41	
12		7 31	4 28	17 50	16 20	11 52	6 56	15 33	
13	Britius	7 33	4 27	18 6	10 44	morn.	7 41	15 24	
14		7 34	4 25	18 22	4 50	1 10	8 23	15 15	
15	Machutus	6 36	4 23	18 37	1 n 7	2 25	9 4	15 4	
16		7 37	4 22	18 52	6 57	3 38	9 45	14 53	
F	25 S. aft. Trin.	Hugh	4 20	19 7	12 26	4 51	10 20	14 41	
18		7 40	4 19	19 22	17 26	6 3	11 8	14 28	
19		7 42	4 17	19 36	21 43	7 13	11 55	14 14	
20	Edmund	7 43	4 16	19 49	25 6	☾ rises	morn.	14 0	
21		7 44	4 15	20 2	27 24	4 a 33	0 43	13 45	
22	Cecil O. Mart. d.	7 46	4 13	20 15	28 28	5 17	1 35	13 29	
23	St. Clement	7 47	4 12	20 28	28 12	6 13	2 25	13 12	
F	26 S. after Trin.	7 49	4 11	20 40	26 38	7 20	3 15	12 54	
25	D. Glouc. born	7 50	4 9	20 52	23 40	8 33	4 5	12 36	
26		7 51	4 8	21 3	19 53	9 52	4 53	12 16	
27		7 52	4 7	21 14	15 1	11 8	5 40	11 56	
28	Mich. Term ends	7 54	4 7	21 25	9 23	morn.	6 24	11 36	
29		7 55	4 5	21 35	3 11	0 27	7 9	11 14	
30	St. Andrew	7 56	4 4	21 45	3 s 22	1 48	7 54	10 52	
Days	Day decreas.	Length of day	Helioc. long. ♀	Helioc. long. ☿	Helioc. long. ♂	Helioc. long. ☾	Helioc. long. ♀	Helioc. long. ♂	h sets
1	6 59	9 35	2 9	5 32	1 35	9 13	1 47	20 22	7 a 20
7	7 21	9 13	2 20	6 2	4 17	15 15	11 29	20 55	6 59
13	7 43	8 51	2 31	6 32	7 0	21 17	21 9	25 36	6 37
19	7 59	8 35	2 41	7 2	9 43	27 21	om 48	3 18	6 14
25	3 15	8 19	2 52	7 31	12 2	3 12	5 10	8 47	5 52

1782.

November.

29

Day	Day lig. begins	Day lig. ends	Durat. tw. lig.	Pl. ☾'s node	h's latitude	☾'s latitude	♂'s latitude	♀'s latitude	♂'s latitude
1	5 17	6 43	1 5 ^h	5 ♀ 14	on 43	on 4	on 53	1 n 27	2 s 36
7	5 26	6 34	1 58	4 55	o 47	o 3	o 51	1 20	1 25
13	5 33	6 27	2 0	4 36	o 46	o 3	o 49	1 11	on 33
19	5 41	6 19	2 2	4 17	o 45	o 2	o 47	1 1	2 7
25	5 47	6 13	2 4	3 58	o 45	o 2	o 41	o 40	2 33
Day	☉'s longitude.	☽'s long.	☾'s latitude	h's long.	☾'s long.	♂'s long.	♀'s long.	♂'s long.	♀'s long.
1	m 9 12 54	15 m 44	1 n 53	27 ♀ 55	27 ♀ 23	15 35	13 35	29 m 3	
2	10 13 7	29 36	o 40	28 0	27 34	16 14	14 50	29 R 3	
F	11 13 21	13 55	o s 38	28 6	27 40	16 53	16 5	28 53	
4	12 13 36	28 38	1 56	28 11	27 57	17 32	27 20	28 31	
5	13 13 53	13 m 40	3 7	28 17	28 5	18 11	28 15	28 2	
6	14 14 13	28 52	4 5	28 22	28 21	18 51	19 50	27 24	
7	15 14 35	14 ♀ 2	4 47	28 28	28 33	19 30	1 m 6	26 36	
8	16 14 58	29 1	5 7	28 34	28 44	20 9	2 21	25 39	
9	17 15 22	13 h 42	5 8	28 40	28 56	20 48	3 36	24 32	
F	18 15 47	27 50	4 48	28 46	29 8	21 27	4 52	23 19	
11	19 16 14	11 m 49	4 13	28 52	29 20	22 6	6 7	22 2	
12	20 16 42	25 14	3 24	28 58	29 32	22 46	7 22	20 41	
13	21 17 12	8 ✕ 17	2 26	29 4	29 45	23 25	8 38	19 19	
14	22 17 43	20 59	1 22	29 10	29 57	24 4	9 53	18 2	
15	23 18 15	3 ♀ 26	o 16	29 16	o h 10	24 41	11 8	16 51	
16	24 18 49	15 40	on 50	29 22	o 21	25 22	12 24	15 44	
F	25 19 24	27 45	1 53	29 28	o 35	26 1	13 39	14 46	
18	26 20 0	9 8 44	2 50	29 34	o 47	26 41	14 54	14 1	
19	27 20 38	21 39	3 39	29 41	1 0	27 20	16 10	13 30	
20	28 21 17	3 II 32	4 18	29 47	1 12	27 59	17 28	13 10	
21	29 21 57	15 23	4 46	29 54	1 25	28 39	18 41	12 50	
22	♂ 0 22 39	27 16	5 1	o h 1	1 38	29 18	19 56	12 59	
23	1 23 22	9 m 11	5 4	o 7	1 51	29 5	21 12	13 9	
F	2 24 7	21 10	4 53	o 13	2 4	om 37	22 27	13 30	
25	3 24 53	3 17	4 29	o 20	2 17	1 17	23 43	14 1	
26	4 25 41	15 34	3 52	o 27	2 29	1 56	24 58	14 37	
27	5 26 31	28 7	3 4	o 33	2 42	2 36	26 14	15 22	
28	6 27 22	10 m 58	2 5	o 40	2 55	3 15	27 29	16 15	
29	7 28 15	24 13	o 58	o 47	3 8	3 55	28 45	17 11	
30	8 29 9	7 54	o s 15	o 53	3 21	4 34	o ♀ 0	18 12	
Days	☾ sets	♂ rises.	♀ rises	♂ sets	h's declin.	☾'s decl n.	♂'s declin.	♀'s d-clin.	♂'s declin.
1	7 a 13	4 m 55	5 m 37	5 a 16	22 s 39	23 s 22	5 s 20	7 s 49	22 s 31
7	6 54	4 54	5 57	4 54	22 40	23 24	6 51	10 37	20 47
13	6 35	4 52	6 16	rises	22 41	23 25	8 21	13 16	17 3
19	6 16	4 50	6 34	6 m 11	22 4	23 25	9 49	15 43	13 54
25	5 56	4 47	6 52	5 48	22 4	23 25	11 15	17 55	13 38

The LUNATIONS.

New Moon the 4th day at 20 minutes past 9 at night,
First quarter the 11th day at 1 minute past 4 evening,
Full Moon the 19th day at 39 minutes past 7 evening,
Last quarter the 27th day at 24 minutes past 4 evening.

M D	Sundays & other remark. days	☉ rises	☉ sets	☉'s declin.	☾'s declin.	☾ rises & sets	☾ South	Clock aft. ☉
F	Advent Sunday	7 57	4 3	21 s 54	9 s 59	3 m 12	8 m 42	10 29
2		7 58	4 2	22 3	16 16	4 40	9 33	10 6
3		7 59	4 1	22 12	21 46	6 15	10 30	9 42
4		8 0	4 0	22 20	25 54	☾ sets	11 31	9 17
5		8 1	3 50	22 27	28 9	3 a 52	0 a 38	8 52
6	Nicholas	8 2	3 58	22 35	28 16	5 5	1 46	8 26
7		8 2	3 57	22 41	26 18	6 30	2 51	8 0
F	2 S. in Advent	Concep.	3 57	22 48	22 37	7 59	3 49	7 33
9		8 4	3 56	22 54	17 44	9 26	4 42	7 6
10		8 5	3 55	22 59	12 8	10 49	5 29	6 39
11		8 5	3 55	23 4	6 10	morn.	6 12	6 11
12		8 6	3 54	23 9	0 8	0 4	6 53	5 42
13	Lucy	8 6	3 54	23 13	5 n 45	1 17	7 34	5 14
14		8 6	3 54	23 16	11 19	2 30	8 15	4 45
F	3 S. in Advent	8 7	3 53	23 19	16 24	3 41	8 57	4 16
16	O Sapientia	Camb. T. ends		23 22	20 50	4 55	9 41	3 47
17	Oxf. Term ends	8 7	3 53	23 24	24 24	6 8	10 29	3 17
18	Ember Week	8 8	3 52	23 26	26 56	7 17	11 19	2 47
19		8 8	3 52	23 27	28 16	☾ rises	morn.	2 18
20		8 8	3 52	23 28	28 18	3 a 55	0 10	1 48
21	St. Thomas	Shortest day	52	23 28	26 58	5 0	1 0	1 18
F	4 S. in Advent	8 8	3 52	23 28	24 23	6 13	1 50	0 48
23		8 8	3 52	23 27	20 41	7 29	2 39	0 18
24		8 8	3 52	23 26	16 1	8 45	3 25	obe. 12
25	Christmas day	8 8	3 52	23 25	10 37	10 1	4 10	0 42
26	St. Stephen	8 7	3 53	23 23	4 41	11 17	4 53	1 12
27	St. John	8 7	3 53	23 20	1 s 36	morn.	5 36	1 42
28	Innocents	8 7	3 53	23 17	8 0	0 38	6 21	2 11
F	1 S. aft. Christ	8 6	3 54	23 14	14 12	2 0	7 8	2 41
30		8 6	3 54	23 10	19 45	3 29	8 0	3 10
31	Silvester	8 5	3 55	23 5	24 24	5 1	8 57	3 39
☉	Day	Length	Helioc.	Helioc.	Helioc.	Helioc.	Helioc.	h
☉	decreas.	of day	long. ♀	long. ♂	long. ♂	long. ♀	long. ♀	sets
1	8 28	8 6	3 3 3	8 3 0	15 13	9 11 30	20 11 1	8 1 58
7	8 39	7 55	3 14	8 30	18 0	15 36	29 35	3 53
13	8 46	7 48	3 25	9 0	20 47	21 42	9 8	24 55
19	8 50	7 44	3 35	9 30	23 36	27 49	18 40	13 25
25	einc. 1	7 44	3 46	10 0	26 26	3 56	28 10	0 30

1782

December.

31

Days	Day lig. begins	Day lig. ends	Durat twilig.	Pl. (C's node	h's latitude	2's latitude	♂'s latitude	♀'s latitude	♂'s latitude
1	5 54	6 6	2 5	3V39	on 44	on 1	on 42	on 37	2 n 14
7	5 57	6 3	2 6	3 20	o 44	o 0	o 35	o 23	1 35
13	5 59	6 1	2 7	3 1	o 43	o 0	o 36	o 8	o 51
19	6 1	5 59	2 7	2 42	o 43	o s 1	o 33	o s 6	o 6
25	6 1	5 59	2 7	2 23	o 42	o 1	o 30	o 20	o s 36
Days	☉'s longitude	☌'s long.	☌'s latitude	h's long.	2's long.	♂'s long.	♀'s long.	♂'s long.	♀'s long.
F	♂ 9 30	5 22	♂ 3 1 s 29	1 1/2 0	3 1/2 34	5 m 14	1 ♀ 16	19 m 18	
2	10 31	2 6	m 41	2 40	1 7	3 47	5 54	2 31	20 27
3	11 32	0 21	41	3 41	1 14	4 1	6 33	3 47	21 39
4	12 33	0 6	♂ 58	4 28	1 21	4 14	7 13	5 2	22 54
5	13 34	1 22	20	4 55	1 28	4 28	7 53	6 18	24 11
6	14 35	2 7	♂ 35	5 2	1 35	4 41	8 32	7 33	25 30
7	15 36	5 22	32	4 47	1 41	4 55	9 12	8 49	26 51
F	16 37	8 7	m 4	4 14	1 48	5 8	9 52	10 4	28 13
9	17 38	11 21	6	3 27	1 55	5 22	10 32	11 20	29 37
10	18 39	15 4	♂ 38	2 29	2 2	5 35	11 12	12 35	1 ♀ 1
11	19 40	19 17	42	1 25	2 9	5 49	11 52	13 51	2 26
12	20 41	24 0	♂ 23	0 19	2 15	6 2	12 31	15 6	3 52
13	21 42	29 12	45	on 46	2 22	6 16	13 11	16 22	5 20
14	22 43	34 24	53	1 48	2 29	6 30	13 51	17 38	6 48
F	23 44	40 6	♂ 51	2 45	2 36	6 43	14 31	18 53	8 17
16	24 45	47 18	44	3 33	2 43	6 57	15 11	20 9	9 46
17	25 46	53 0	♂ 35	4 12	2 50	7 11	15 51	21 25	11 15
18	26 48	0 12	27	4 40	2 57	7 25	16 30	22 40	12 45
19	27 49	7 24	20	4 56	3 5	7 39	17 10	23 56	14 15
20	28 50	14 6	♂ 18	4 59	3 12	7 52	17 50	25 11	15 45
21	29 51	22 18	19	4 48	3 16	8 6	18 30	26 27	17 16
F	♂ 0 52	31 0	♂ 27	4 25	3 26	8 20	19 10	27 4	18 47
23	1 53	40 12	41	3 49	3 35	8 34	19 49	28 58	20 19
24	2 54	50 25	5	3 2	3 40	8 48	20 29	♂ 13	21 51
25	3 56	0 7	♂ 41	2 5	3 47	9 2	21 9	1 29	23 23
26	4 57	11 20	32	1 0	3 54	9 16	21 49	2 45	24 55
27	5 58	22 3	42	0 s 9	4 1	9 30	22 29	4 c	26 28
28	6 59	33 17	14	1 19	4 8	9 44	23 9	5 16	28 1
F	8 0	45 1	m 9	2 27	4 15	9 58	23 49	6 31	29 34
30	9 1	57 15	30	3 28	4 22	10 2	24 29	7 47	1 1/2 8
31	10 3	10 0	♂ 15	4 17	4 29	10 26	25 10	9 2	2 42
Days	☌ sets	♂ rises	♀ rises	♂ rises	h's declin.	2's declin.	♂'s declin.	♀'s declin.	♂'s declin.
1	5 a 36	4 m 44	7 m 9	5 m 56	22 s 42	23 s 24	12 s 38	19 s 50	15 s 25
7	5 16	4 40	7 25	6 14	22 45	23 22	13 57	21 25	17 55
13	4 56	4 36	7 35	6 36	22 47	23 19	15 14	22 38	20 23
19	4 36	4 32	7 51	6 59	22 48	23 14	16 27	23 25	22 26
25	4 15	4 25	7 58	7 21	22 42	23 9	17 35	23 47	23 53

Time of High-Water at LONDON in the morning and after noon of every day in the year.

No. Days	JANUARY				FEBRUARY				MARCH				APRIL				No. Days
	morn.		aftern.		morn.		aftern.		morn.		aftern.		morn.		aftern.		
	h	m	h	m	h	m	h	m	h	m	h	m	h	m	h	m	
1	3	18	3	42	4	0	4	17	3	10	3	26	4	4	4	25	1
2	3	51	4	16	4	35	4	53	3	43	3	59	4	49	5	13	2
3	4	26	4	53	5	11	5	31	4	14	4	33	5	39	6	9	3
4	4	5	4	5	5	54	6	19	4	55	5	17	6	42	7	15	4
5	5	42	6	3	6	48	7	18	5	40	6	7	7	50	8	26	5
6	6	29	6	53	7	51	8	27	6	40	7	13	9	2	9	37	6
7	7	19	7	46	9	7	9	46	7	47	8	24	10	10	10	42	7
8	8	21	8	53	10	28	11	7	9	5	9	45	11	12	11	40	8
9	9	29	10	4	11	45			10	25	11	1			0	6	9
10	10	44	11	22	0	19	0	50	11	13			0	20	0	50	10
11			0	3	1	20	1	46	0	4	0	32	1	12	1	33	11
12	0	42	1	10	2	12	2	36	0	59	1	23	1	54	2	15	12
13	1	45	2	11	2	56	3	10	1	46	2	7	2	34	2	50	13
14	2	39	3	0	3	25	3	37	2	26	2	44	3	5	3	10	14
15	3	21	3	34	3	40	4	1	3	0	3	12	3	34	3	40	15
16	3	51	4	4	4	15	4	31	3	25	3	38	4	4	4	10	16
17	4	20	4	36	4	46	5	2	3	51	4	4	4	37	4	50	17
18	4	52	5	8	5	18	5	35	4	19	4	36	5	20	5	42	18
19	5	25	5	41	5	56	6	19	4	53	5	12	6	7	6	36	19
20	5	59	6	21	6	44	7	10	5	32	5	54	7	4	7	33	20
21	6	42	7	4	7	30	8	10	6	19	6	48	8	4	8	38	21
22	7	27	7	52	8	44	9	21	7	18	7	50	9	12	9	46	22
23	8	18	8	50	9	58	10	35	8	24	9	0	10	19	10	50	23
24	9	21	9	57	11	12	11	48	9	36	10	14	11	22	11	54	24
25	10	31	11	5			0	20	10	49	11	22			0	25	25
26	11	39			0	48	1	16	11	53			0	50	1	16	26
27	0	13	0	46	1	43	2	9	0	22	0	50	1	42	2	9	27
28	1	14	1	44	2	34	2	54	1	17	1	43	2	37	3	0	28
29	2	11	2	37					2	9	2	32	3	16	3	39	29
30	2	56	3	16					2	53	3	12	3	58	4	21	30
31	3	30	3	46					3	29	3	47					31

This Table may serve the following Places, by adding

	h	m
For Tinnmouth Haven, Hartle-pool, and Amsterdam	0	30
Brest — — — — —	1	0
Scilly — — — — —	1	45
Mount's Bay — — — — —	1	55
Bridlington Pier and Humber — — — — —	2	0

Time of High-Water at LONDON in the morning and afternoon of every day in the year.

Mo. Days	MAY				JUNE				JULY				AUGUST				Mo. Days
	morn.		aftern.		morn.		aftern.		morn.		aftern.		morn.		aftern.		
	h	m	h	m	h	m	h	m	h	m	h	m	h	m	h	m	
1	4	47	5	12	6	12	6	38	6	13	6	35	6	53	7	16	1
2	5	38	6	7	7	2	7	26	6	58	7	19	7	41	8	10	2
3	6	37	7	7	7	51	8	18	7	43	8	8	8	42	9	15	3
4	7	37	8	9	8	44	9	11	8	35	9	2	9	50	10	22	4
5	8	38	9	10	9	30	10	4	9	30	10	1	10	56	11	31	5
6	9	38	10	8	10	28	10	54	10	29	10	59			0	4	6
7	10	34	10	59	11	22	11	48	11	32			0	34	1	3	7
8	11	26	11	51			0	14	0	3	0	32	1	31	1	57	8
9			0	13	0	39	1	5	1	0	1	28	2	24	2	45	9
10	0	35	0	57	1	29	1	54	1	54	2	22	3	3	3	19	10
11	1	10	1	40	2	20	2	43	2	45	3	4	3	34	3	48	11
12	2	3	2	26	2	59	3	21	3	21	3	36	4	2	4	17	12
13	2	44	3	2	3	37	3	54	3	52	4	6	4	36	4	54	13
14	3	18	3	34	4	9	4	30	4	24	4	42	5	12	5	33	14
15	3	51	4	6	4	48	5	7	4	59	5	16	5	56	6	24	15
16	4	26	4	46	5	26	5	46	5	35	5	57	6	52	7	25	16
17	5	6	5	27	6	5	6	33	6	21	6	46	8	2	8	40	17
18	5	50	6	16	6	59	7	21	7	12	7	40	9	22	10	5	18
19	6	42	7	9	7	49	8	18	8	13	8	49	10	46	11	26	19
20	7	36	8	5	8	50	9	22	9	27	10	8			0	3	20
21	8	36	9	7	9	58	10	31	10	48	11	29	0	36	1	7	21
22	9	39	10	9	11	7	11	46			0	9	1	35	2	2	22
23	10	40	11	12			0	22	0	45	1	18	2	26	2	46	23
24	11	46			0	57	1	30	1	49	2	20	3	2	3	18	24
25	0	18	0	47	2	5	2	36	2	45	3	5	3	31	3	45	25
26	1	18	1	46	3	1	3	22	3	22	3	38	3	58	4	11	26
27	2	21	2	48	3	41	3	59	3	54	4	8	4	28	4	43	27
28	3	11	3	32	4	16	4	37	4	24	4	41	5	0	5	17	28
29	3	53	4	13	4	56	5	14	4	56	5	13	5	35	5	57	29
30	4	38	5	1	5	33	5	53	5	30	5	49	6	21	6	46	30
31	5	22	5	46					6	9	6	31	7	12	7	40	31

Adding

h m

For Fowey, Loo and Plymouth	—	—	—	—	3	10
Dartmouth, Harbrough and Hull	—	—	—	—	3	30
Torbay and Tinmouth	—	—	—	—	3	40
Exmouth, Topsham and Lime	—	—	—	—	3	50
Weymouth	—	—	—	—	4	20
Bridgewater and Texel	—	—	—	—	4	40
Portland and Hartlew	—	—	—	—	5	50

Time of High-Water at LONDON in the morning and afternoon of every day in the year.

Mo. Days	SEPTEMBER				OCTOBER				NOVEMBER				DECEMBER				Mo. Days
	morn.		aftern.		morn.		aftern.		morn.		aftern.		morn.		aftern.		
	h	m	h	m	h	m	h	m	h	m	h	m	h	m	h	m	
1	8	13	8	48	9	5	9	39	10	37	11	6	10	43	11	15	1
2	9	24	10	1	10	12	10	44	11	35			11	48			2
3	10	35	11	10	11	16	11	48	0	6	0	33	0	21	0	53	3
4	11	44					0	16	1	0	1	27	1	24	1	55	4
5	0	14	0	42	0	42	1	7	1	54	2	23	2	29	2	55	5
6	1	8	1	34	1	32	1	56	2	48	3	9	3	19	3	41	6
7	1	54	2	24	2	22	2	44	3	30	3	50	4	1	4	23	7
8	2	44	3	1	2	55	3	21	4	9	4	36	4	45	5	8	8
9	3	17	3	32	3	38	3	56	5	1	5	26	5	30	5	53	9
10	3	48	4	3	4	16	4	40	5	53	6	24	6	19	6	42	10
11	4	22	4	43	5	4	5	28	6	53	7	23	7	7	7	28	11
12	5	4	5	26	5	58	6	31	7	54	8	23	7	55	8	19	12
13	5	54	6	25	7	4	7	39	8	54	9	22	8	48	9	14	13
14	6	58	7	32	8	15	8	52	9	52	10	19	9	42	10	8	14
15	8	10	8	51	9	28	10	2	10	46	11	11	10	35	11	2	15
16	9	31	10	11	10	34	11	1	11	38			11	31	11	58	16
17	10	48	11	23	11	32	11	58	0	3	0	26			0	24	17
18	11	57					0	24	0	48	1	10	0	52	1	17	18
19	0	24	0	52	0	46	1	9	1	32	1	55	1	43	2	9	19
20	1	16	1	30	1	26	1	50	2	20	2	41	2	34	2	53	20
21	2	1	2	23	2	11	2	32	2	59	3	16	3	10	3	27	21
22	2	40	2	56	2	49	3	5	3	32	3	49	3	43	3	58	22
23	3	10	3	25	3	19	3	34	4	4	4	22	4	13	4	32	23
24	3	38	3	51	3	49	4	4	4	42	5	1	4	49	5	7	24
25	4	5	4	20	4	22	4	42	5	20	5	41	5	24	5	44	25
26	4	39	4	56	5	2	5	22	6	4	6	29	6	4	6	27	26
27	5	15	5	36	5	44	6	10	6	53	7	18	6	49	7	13	27
28	6	1	6	27	6	36	7	3	7	43	8	11	7	39	8	8	28
29	6	56	7	24	7	31	8	2	8	40	9	10	8	38	9	14	29
30	7	57	8	30	8	32	9	5	9	41	10	12	9	40	10	25	30
31					9	35	10	7					11	2	11	41	31

Subtracting

h m

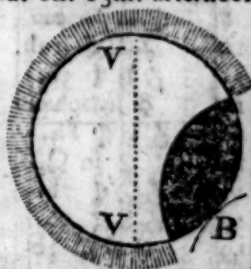
For Leigh, Maes, and Gouries Gut	—	—	—	—	0	5
Gravesend Rochester, and Rammekins	—	—	—	—	1	20
Buoy of the Nore and Flushing	—	—	—	—	1	30
Portsmouth, Ostend, Shoe-Bacon, and Red-Sand	—	—	—	—	2	0
Harwich, Dover, Spithead, and Calais	—	—	—	—	3	0
Gunfleet, Hastings, Shoreham, Orfordness, and Diep	—	—	—	—	4	0
Yarmouth Pier and Needle	—	—	—	—	4	40
St. Helen's and Havre-de-Grace	—	—	—	—	5	30

In this year will happen 4 eclipses of the two great luminaries, viz. 2 of the moon, and 2 of the sun; but only a part of one of them visible in these parts of the world. As also a transit of Mercury over the Sun.

I. The first is an invisible eclipse of the Moon, on March 29, about our 8 o'clock in the morning. The greatest defect near 8 digits; and will be visible to all North and South America, and the West India islands.

H. The 2d is an eclipse of the Sun on the 12th of April, the beginning of which will be visible in England if the air prove clear, but the Sun sets before the middle. In North America the whole eclipse will be visible, and to the northern parts it will be a great eclipse, but no where total though central, for along the track of central appearance the ambit of the Moon will be encompassed with a splendid ring of light. At London the eclipse begins on the right-hand side of the Sun's lower limb at 6h. 13m. afternoon, apparent time; and the Sun will set in 36m. after, viz. at 6h. 49m. then upwards of 4 digits eclipsed.

N. B. The farther north, the Sun will set later, therefore the quantity of obscuration at sun-setting will be various at different places; but the annexed type, which is adapted for London at sun-set, will serve the whole kingdom. Here V V is a vertical circle, and B the point in the Sun's limb where the eclipse begins.



III. The 3d is a partial eclipse of the Moon, the 21st of Sept. begins at 1h. 20m. in the morning, and ends at 3h. 28m. which is long before the Moon rises to these kingdoms. The greatest defect is about 3 deg. 42 min. and the eclipse will be visible to all Asia and most of the South Sea islands.

IV. The 4th and last is a solar defect, on the 7th of October, about our 1 o'clock in the morning, therefore invisible both to us and all Europe. But in the great South Sea it will be a large eclipse, and between New Zealand and Van Diemen's land, in about 49 deg. and a half south lat. and 158 deg. east long. from London, the Sun will be totally and centrally eclipsed on the meridian.

Besides these eclipses, there will happen a small transit of Mercury Nov. 12, which planet will, if our calculations and tables are right, pass over the upper limb of the Sun from east to west in form of a round black spot, and visible to all places where the Sun is up, the air being clear; and is a phenomenon never seen before the year 1639. From the smallness of Mercury's diameter, some sort of telescope will be necessary for observing him transit, using a dark glass between the telescope and eye, to guard it from the Sun's rays. The annexed fig. is the type for London, where ☿ ☿ is the planet's path, I the ingress or beginning, which is at 2h. 51m. afternoon, and E the end at 4h. 15m. app. time. And according as places are situated to the east or west of the meridian of London in time, just so much later or sooner will the times of the transit happen at those places.—The ecliptic varying its position, in respect to the vertical circle, will make the transit appear to be performed in a curve concave towards the Sun's center. Mercury's lat. at ingress is 15m. at the egress 16m north; the Sun's diam. 16m. 14 sec. Mercury's about 4 sec.



H. ANDREWS.

Speculum Phænomenorum

JANUARY		FEBRUARY		MARCH	
1	♂ ♀ 8h.			1	☾ in perigeo
2	♂ in ☾			5	♀ in aphelio
7	♀ elong. max. a ☉	2	☾ in perigeo	6	♂ stationary
8	☾ in perigeo	7	♂ ♀ 8h.	6	♂ ♀ 21h.
10	♂ ♀ 17h.	7	♂ ♀ 18h.	7	♂ ♀ 3h.
11	♂ ♀ 3h.	11	♂ ☉ 21h.	13	♂ ☉ 13h.
12	♂ in aphelio	12	♂ ♀ 20h.	13	♂ ♀ 22h.
12	♂ ♀ 8h.	15	♂ ♀ 6h.	14	♂ ♀ 10h.
13	♀ in ☾	17	♂ ♀ 3h.	16	♂ ☉ 2h.
13	♂ ☉ 7h.	17	☉ in ☿ 22h. 43m.	17	☉ ☉ 18h.
17	♂ ♀ 3h.	18	☾ in apogeo	18	☾ in apogeo
19	♂ ♀ 3h.	20	♂ in ☾	18	♂ ♀ 2h.
19	☉ in ♀ 7h. 52m.	25	♂ in perihelio	19	☉ in ♀ 23h. 10m.
20	♂ in ☾	28	♀ stationary	20	♂ ☉ ♀ 13h.
21	☾ in apogeo	28	♂ elong. max. a ☉	21	☉ ☉ 1h.
31	♂ ☉ ♀ 13h.			28	☾ eclips. invis.
APRIL		MAY		JUNE	
3	♂ ♀ 7h.			6	♂ ♀ 9h.
3	♂ ♀ 11h.			8	☾ in apogeo
9	♂ ♀ 0h.	6	♀ in ☾	10	♂ ☉ 13h.
9	♂ ♀ 17h.	7	♂ ♀ 22h.	12	♂ ♀ 11h.
9	♂ ♀ 18h.	10	♂ ♀ 18h.	12	♂ ♀ 14h.
10	♂ stationary	11	☾ in apogeo	14	♂ ♀ 6h.
10	♀ stationary	11	♂ ☉ 22h.	14	♂ ☉ 18h.
10	♂ in aphelio	14	♂ ♀ 19h.	18	♂ ☉ 21h.
12	♂ ☉ 6h.	19	♂ in ☾	20	☉ in ♀ 21h. 21m.
12	☉ eclips. visible	20	☉ in ♀ 12h. 37m.	23	☾ in perigeo
13	♂ elong. max. a ☉	21	♂ ☉ ♀ 22h.	24	♂ ♀ 2h.
14	☾ in apogeo	24	♂ in perihelio	24	♂ ♀ 10h.
15	♂ stationary	26	☾ in perigeo	24	♂ elong. max. a ☉
16	♂ ♀ 1h.	27	♀ elong. max. a ☉	26	♀ in perihelio
19	☉ in ♀ 11h. 59m.	27	♂ ♀ 21h.	27	♂ in ☾
27	☾ in perigeo	28	♂ ♀ 3h.		
30	♂ ♀ 15h.				
30	♂ ♀ 19h.				

ad Annum 1782.

JULY	AUGUST	SEPTEMBER
5 ☾ in apogeo 6 ♂ ♀ ☾ 8h. 7 ♀ in aphelio 9 ♀ stationary 10 ♂ ☾ ☾ 3h. 11 ♂ ♂ ☾ 7h. 11 ♂ ♀ ☾ 14h. 20 ☾ in perigeo 21 ♂ ♀ ☾ 7h. 21 ♂ ♀ ☾ 16h. 22 ☉ in ♍ 8h. 11m. 23 ♂ ☾ ♀ oh.	2 ♀ stationary. 2 ☾ in apogeo 5 ♂ ♀ ☾ 13h. 7 ♂ ♀ ☾ 3h. 8 ♂ ☾ ☾ 15h. 9 ♂ ♂ ☾ oh. 11 ♀ elong. max. a ☉. 15 ♀ stationary 15 ♀ in ☊ 16 ☾ in perigeo 17 ♂ ♀ ☾ 12h. 17 ♂ ♀ ☾ 21h. 20 ♀ in perihelio 22 ☉ in ♍ 14h. 32m. 23 ♂ ☾ ♂ 17h. 26 ♂ in aphelio 27 ♀ in ☊ 29 ♀ stationary 30 ☾ in apogeo	4 ♂ ♀ ☾ 17h. 4 ♂ ☾ ♀ 22h. 6 ♂ ♂ ☾ 18h. 7 ♂ ☾ ☾ 2h. 7 ♂ ♀ ☾ 6h. 10 ☾ in perigeo 12 ☐ ☾ ♀ 17h. 13 ♂ ♀ ☾ 19h. 14 ♂ ♀ ☾ 10h. 17 ☐ ☾ ♀ 11h. 21 ☾ eclips. invif. 22 ☉ in ♌ 10h. 59m. 23 ♀ in ☊ 26 ☾ in apogeo
OCTOBER	NOVEMBER.	DECEMBER.
3 ♀ in aphelio 4 ♂ ♀ ☾ 21h. 5 ♂ ♂ ☾ 10h. 6 ♂ ☾ ☾ 13h. 6 ☉ eclips. invif. 8 ☾ in perigeo 8 ♂ ♀ ☾ 2h. 11 ♂ ♀ ☾ 7h. 11 ♂ ♀ ☾ 10h. 16 ♀ in aphelio 18 ♂ ♂ ♀ 16h. 22 ♀ elong. max. a ☉. 22 ☉ in ♍ 18h. 52m. 24 ☾ in apogeo	2 ♀ stationary 3 ♂ ♂ ☾ 6h. 3 ♂ ♀ ☾ 22h. 4 ♂ ☾ ☾ 23h. 5 ☾ in perigeo 5 ♂ ♀ ☾ 22h. 6 ♂ ♀ ♀ oh. 7 ♂ ♀ ☾ 23h. 7 ♂ ♀ ☾ 23h. 11 ♀ in ☊ 12 ♀ transf. ☉, ingr. 2h. 51m. egr. 4h. 15m. 16 ♀ in perihelio 20 ☾ in apogeo 21 ☉ in ♌ 15h. 3m. 21 ♀ stationary 30 ♀ elong. max. a ☉.	1 ♂ ♂ ☾ 22h. 3 ♂ ♀ ☾ oh. 3 ♂ ♀ ☾ 21h. 4 ♂ ☾ ☾ 9h. 4 ☾ in perigeo 5 ☐ ♀ ♀ oh. 5 ♂ ♀ ☾ 14h. 5 ♂ ♀ ☾ 19h. 10 ♀ in ☊ 16 ♀ in ☊ 17 ☾ in apogeo 20 ♀ in ☊ 21 ☉ in ♍ 3h. 23m. 24 ♂ ☾ ♀ 20h. 30 ♀ in aphelio 31 ♂ ☾ ♀ 11h.

The Eclipses of Jupiter's

JANUARY	FEBRUARY	MARCH	APRIL
Immersion	Immersion	Immersion	Immersion
2 7 57 21	1 9 49 24	1 17 23 34	2 14 1 52
4 2 24 54	3 4 17 28	3 11 52 14	4 8 30 44
5 20 52 27	4 22 45 35	5 6 20 56	6 2 59 35
7 15 20 3	6 17 13 47	7 0 49 37	7 21 28 26
9 9 47 38	8 11 42 2	8 19 18 21	9 15 57 18
11 4 15 15	10 6 10 16	10 13 47 5	11 10 26 8
12 22 42 54	12 0 38 34	12 8 15 51	13 4 54 56
14 17 10 35	13 19 6 56	14 2 44 38	14 23 23 42
16 11 38 17	15 13 35 16	15 21 13 26	16 17 52 30
18 6 6 2	17 8 3 40	17 15 42 15	18 12 21 17
20 0 33 50	19 2 32 6	19 10 11 3	20 6 50 2
21 19 1 39	20 21 0 36	21 4 39 56	22 1 18 46
23 13 29 31	22 15 29 7	22 23 8 44	23 19 47 30
25 7 57 27	24 9 57 41	24 17 37 38	25 14 16 12
27 2 25 23	26 4 26 17	26 12 6 25	27 8 44 54
28 20 53 20	27 22 54 56	28 6 35 19	29 3 13 34
30 15 21 25		30 1 4 8	30 21 42 11
		31 19 33 3	
MAY	JUNE	JULY	AUGUST
Immersion	Immersion	Emersion	Emersion
2 16 10 45	1 18 14 10	1 22 26 1	1 0 33 8
4 10 39 19	3 12 42 26	3 16 54 26	2 19 2 8
6 5 7 53	5 7 10 44	5 11 22 51	4 13 31 10
7 23 36 27	7 1 38 59	7 5 51 17	6 8 0 12
9 18 4 59	8 20 7 15	9 0 19 46	8 2 29 16
11 12 33 30	10 14 35 30	10 18 48 16	9 20 58 22
13 7 2 1	12 9 3 44	12 13 16 48	11 15 27 30
15 1 30 30	14 3 31 57	14 7 45 23	13 9 56 40
16 19 58 37	Emersion	16 2 14 0	15 4 25 53
18 14 27 23	16 0 11 6	17 20 42 39	16 22 55 5
20 8 55 48	17 18 39 23	19 15 11 19	18 17 24 20
22 3 24 11	19 13 7 41	21 9 40 2	20 11 53 39
23 21 52 33	21 7 35 59	23 4 8 46	22 6 22 57
25 16 20 54	23 2 4 17	24 22 37 33	24 0 52 17
27 10 49 14	24 20 32 37	26 17 6 22	25 19 21 40
29 5 17 33	26 15 0 56	28 11 35 14	27 13 51 2
30 23 45 52	28 9 29 16	30 6 4 13	29 8 20 24
	30 3 57 37		31 2 49 48

first Satellite for 1782.

SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
Emerfions	Emerfions	Emerfions	
1 21 19 19	1 23 40 29	1 1 56 15	The Eclipses of Jupiter's Satellites will not be vifible this month, Jupiter being too near the Sun.
3 15 48 46	3 18 9 53	2 20 25 3	
5 10 18 15	5 12 39 15	4 14 53 40	
7 4 47 44	7 7 8 38	6 9 22 30	
8 23 17 12	9 1 38 0	8 3 51 8	
10 17 46 41	10 20 7 17	9 22 19 43	
12 12 16 11	12 14 36 34	11 16 48 15	
14 6 45 43	14 9 5 49	13 11 16 45	
16 1 15 14	16 3 35 2	15 5 45 12	
17 19 44 43	17 22 4 11	17 0 13 36	
19 14 14 14	19 16 33 21	18 18 41 57	
21 8 43 43	21 11 2 27	20 13 10 15	
23 3 13 14	23 5 31 33	22 7 38 29	
24 21 42 43	25 0 0 33	24 2 6 41	
26 16 12 13	26 18 29 33	25 20 34 50	
28 10 41 40	28 12 58 28	27 15 2 56	
30 5 11 5	30 7 27 22	29 9 31 0	

The Times of the Eclipses contained in this Table, are adapted to the Meridian of the Royal Observatory at Greenwich, and afford an excellent Method to discover the Longitude or Difference of Meridians, between that and any other Place; which I shall illustrate by an EXAMPLE:

Suppose on the 25th Day of October this Year, the Time of the Emerfion of Jupiter's first Satellite be observed (by a Telescope) in an unknown Meridian, to happen at 1 h. 24 min. 45 sec. at night; I find by the Table, that the Time of this Emerfion will happen at the British Observatory, at 0 h. 0 min. 33 sec. the same day: The Difference of the Times is 1 hour 24 min. 12 sec. which being converted into Degrees and Minutes of the Equator, will make 21 deg. 3 min. the Longitude of the Place of Observation to the East; because the Time is more than that at the British Observatory.

A Table of the Sun's semi-diurnal Arches, or Times

The Sun's Declination North.

Degr.	Lat. 49	Lat. 50	Lat. 51	Lat. 52	Lat. 53	Lat. 54
	h m	h m	h m	h m	h m	h m
0	6 4	6 4	6 4	6 4	6 4	6 4
1	6 8	6 8	6 8	6 9	6 9	6 9
2	6 12	6 13	6 13	6 14	6 14	6 15
3	6 17	6 18	6 18	6 19	6 19	6 20
4	6 22	6 22	6 22	6 24	6 25	6 25
5	6 26	6 27	6 27	6 29	6 30	6 31
6	6 31	6 32	6 33	6 34	6 36	6 37
7	6 36	6 37	6 38	6 40	6 41	6 43
8	6 41	6 42	6 43	6 45	6 47	6 48
9	6 45	6 47	6 48	6 50	6 52	6 54
10	6 50	6 52	6 54	6 56	6 58	7 0
11	6 55	6 57	6 59	7 1	7 3	7 6
12	7 0	7 2	7 4	7 7	7 9	7 12
13	7 5	7 7	7 10	7 12	7 15	7 18
14	7 10	7 13	7 15	7 18	7 21	7 24
15	7 15	7 18	7 21	7 24	7 27	7 31
16	7 21	7 24	7 27	7 30	7 33	7 37
17	7 26	7 29	7 33	7 36	7 40	7 44
18	7 31	7 35	7 38	7 42	7 46	7 51
19	7 37	7 41	7 45	7 49	7 53	7 58
20	7 43	7 47	7 51	7 55	8 0	8 5
21	7 49	7 53	7 57	8 2	8 7	8 12
22	7 55	7 59	8 4	8 9	8 14	8 20
23	8 1	8 6	8 11	8 16	8 22	8 28
24	8 7	8 12	8 18	8 24	8 30	8 36

By these Tables the Times of the Sun's Rising and Setting may be found, in any Part of the Kingdom of *Great-Britain* or *Ireland*, after the following Manner: Where the Latitude of the Place is known, take the Sun's Declination out of the Table, on the Noon of the Day you desire to know the Time of his Rising and Setting; and with it, according as it is either North or South, enter these Tables in the Left-

of his visible half Duration above the Horizon.

The Sun's Declination South.

Degr.	Lat. 49	Lat. 50	Lat. 51	Lat. 52	Lat. 53	Lat. 54
	h m	h m	h m	h m	h m	h m
0	6 4	6 4	6 4	6 4	6 4	6 4
1	5 59	5 59	5 58	5 58	5 58	5 58
2	5 54	5 54	5 53	5 53	5 53	5 53
3	5 49	5 49	5 49	5 48	5 48	5 47
4	5 45	5 44	5 44	5 43	5 42	5 42
5	5 40	5 39	5 39	5 38	5 37	5 36
6	5 35	5 35	5 34	5 33	5 31	5 30
7	5 31	5 30	5 29	5 27	5 26	5 25
8	5 26	5 25	5 23	5 22	5 21	5 19
9	5 21	5 20	5 18	5 17	5 16	5 13
10	5 17	5 15	5 13	5 11	5 10	5 8
11	5 12	5 10	5 8	5 6	5 4	5 2
12	5 7	5 5	5 3	5 0	4 58	4 56
13	5 2	5 0	4 57	4 55	4 52	4 50
14	4 57	4 54	4 52	4 49	4 47	4 44
15	4 52	4 49	4 46	4 44	4 41	4 37
16	4 46	4 45	4 41	4 38	4 34	4 31
17	4 41	4 38	4 35	4 32	4 28	4 23
18	4 36	4 33	4 29	4 26	4 22	4 18
19	4 30	4 27	4 23	4 19	4 15	4 11
20	4 25	4 21	4 17	4 13	4 9	4 4
21	4 19	4 15	4 11	4 6	4 2	3 57
22	4 13	4 9	4 4	4 0	3 55	3 50
23	4 7	4 3	3 58	3 53	3 47	3 42
24	4 1	3 56	3 51	3 46	3 40	3 34

Left-hand Column, under the Word Degrees; then look the Latitude of the Place in the Top of the Table; and in that Column, against the Sun's Declination, will be found the Time of his visible half duration above the Horizon, or Time of his Setting, correct by Refraction; then subtract the Time of his Setting from 12 Hours, the Remainder will be the Time of his Rising; double the Time of his Setting,

A Table of the Sun's semi-diurnal Arches, or Times

The Sun's Declination North,

Degr.	Lat. 55	Lat. 56	Lat. 57	Lat. 58	Lat. 59	Lat 60
	h m	h m	h m	h m	h m	h m
0	6 4	6 4	6 4	6 4	6 4	6 4
1	6 9	6 10	6 10	6 10	6 11	6 11
2	6 15	6 16	6 16	6 17	6 17	6 18
3	6 21	6 22	6 22	6 23	6 24	6 25
4	6 27	6 28	6 29	6 30	6 31	6 32
5	6 32	6 34	6 35	6 36	6 38	6 39
6	6 38	6 40	6 41	6 43	6 44	6 46
7	6 44	6 46	6 48	6 49	6 51	6 53
8	6 50	6 52	6 54	6 56	6 58	7 1
9	6 56	6 58	7 1	7 3	7 5	7 8
10	7 2	7 5	7 7	7 10	7 13	7 16
11	7 8	7 10	7 14	7 17	7 20	7 23
12	7 15	7 18	7 21	7 34	7 27	7 31
13	7 21	7 24	7 28	7 31	7 35	7 39
14	7 28	7 31	7 35	7 39	7 43	7 47
15	7 34	7 39	7 42	7 46	7 51	7 56
16	7 41	7 45	7 49	7 54	7 59	8 4
17	7 48	7 52	7 57	8 1	8 7	8 13
18	7 55	8 0	8 5	8 10	8 16	8 22
19	8 2	8 7	8 13	8 19	8 25	8 32
20	8 10	8 15	8 21	8 28	8 35	8 42
21	8 18	8 24	8 30	8 37	8 45	8 53
22	8 26	8 32	8 39	8 47	8 55	9 4
23	8 34	8 41	8 49	8 57	9 6	9 16
24	8 43	8 51	8 59	9 8	9 18	9 29

the Sum will be the Length of the Day ; and double the Time of his Rising, the Sum will be the Length of the Night. But if the Latitude of the Place, and Declination of the Sun, consist of Degrees and Minutes, then a small Allowance must be made for the Minutes in both Cases, which may be done by a Person of an ordinary Capacity by a mental Proportion only. Thus, to find the Time of the Sun's Rising and Setting at

of his visible half Duration above the Horizon.

The Sun's Declination South.

Degr.	Lat. 55	Lat. 56	Lat. 57	Lat. 58	Lat. 59	Lat. 60
	h m	h m	h m	h m	h m	h m
0	6 4	6 4	6 4	6 4	6 4	6 4
1	5 58	5 58	5 58	5 58	5 57	5 57
2	5 52	5 52	5 52	5 51	5 51	5 50
3	5 47	5 46	5 45	5 45	5 44	5 43
4	5 41	5 40	5 39	5 38	5 37	5 36
5	5 35	5 34	5 33	5 32	5 31	5 29
6	5 29	5 28	5 27	5 25	5 24	5 22
7	5 23	5 22	5 20	5 19	5 17	5 15
8	5 17	5 16	5 14	5 12	5 10	5 8
9	5 12	5 10	5 8	5 5	5 3	5 2
10	5 5	5 3	5 1	4 59	4 56	4 53
11	4 59	4 57	4 54	4 52	4 49	4 46
12	4 53	4 51	4 48	4 45	4 42	4 38
13	4 47	4 44	4 41	4 38	4 34	4 30
14	4 41	4 37	4 34	4 30	4 27	4 23
15	4 34	4 31	4 27	4 23	4 19	4 14
16	4 27	4 24	4 20	4 15	4 11	4 6
17	4 21	4 17	4 12	4 8	4 3	3 57
18	4 14	4 9	4 5	4 0	3 54	3 48
19	4 7	4 2	3 56	3 51	3 45	3 39
20	3 59	3 54	3 49	3 43	3 36	3 29
21	3 52	3 46	3 40	3 34	3 27	3 19
22	3 44	3 38	3 31	3 24	3 17	3 9
23	3 36	3 29	3 23	3 15	3 6	2 57
24	3 27	3 20	3 13	3 5	2 55	2 45

at Aberdeen in Scotland, on the Longest Day; the Latitude of that Place is accounted 57 Degr. 7 Min. North, and the Sun's Declination 23 Degr. 28 Min. likewise North. By these you will find by the Table, that 5 Min. for the Sun's Declination, and 1 Min. for the Latitude of the Place, are both, to be added to 8 Hours 49 Min. the Time belonging to 57 Degr. of Latitude and 23 Degr. of North Declination, and the Sum will be 8 Hours 55 Min. the Time of his apparent Setting at Aberdeen, on the longest Day, whose Complement to 12 Hours, viz. 3 Hours 5 Min. will be the Time of his Rising, &c.

A Table of the Sun's Right-Ascension in Time, the greatest

Deg. ↓	♈			♉			♊			♋			♌			♍		
	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s
0	0	0	0	1	51	37	3	51	15	6	0	0	8	8	45	10	8	23
1	0	3	40	1	55	27	3	55	25	6	4	22	8	12	34	10	12	12
2	0	7	20	1	59	17	3	59	36	6	8	43	8	17	3	10	16	0
3	0	11	0	2	3	8	4	3	48	6	13	5	8	21	11	10	19	48
4	0	14	41	2	6	59	4	8	0	6	17	26	8	25	19	10	23	35
5	0	18	21	2	10	51	4	12	13	6	21	48	8	29	26	10	27	22
6	0	22	2	2	14	44	4	16	26	6	26	9	8	33	31	10	31	8
7	0	25	42	2	18	37	4	20	40	6	30	30	8	37	37	10	34	54
8	0	29	23	2	22	31	4	24	55	6	34	51	8	41	41	10	38	40
9	0	33	4	2	26	25	4	29	10	6	39	11	8	45	45	10	42	25
10	0	36	45	2	30	20	4	33	26	6	43	31	8	49	48	10	46	9
11	0	40	26	2	34	16	4	37	42	6	47	51	8	53	51	10	49	53
12	0	44	8	2	38	13	4	41	59	6	52	11	8	57	52	10	53	37
13	0	47	50	2	42	10	4	46	16	6	56	31	9	1	53	10	57	20
14	0	51	32	2	46	8	4	50	34	7	0	50	9	5	53	11	1	3
15	0	55	14	2	50	7	4	54	52	7	5	8	9	9	53	11	4	46
16	0	58	5	2	54	7	4	59	10	7	9	26	9	13	52	11	8	28
17	1	2	40	2	58	7	5	3	29	7	13	44	9	17	50	11	12	10
18	1	6	23	3	2	8	5	7	49	7	18	1	9	21	47	11	15	52
19	1	10	7	3	6	9	5	12	9	7	22	18	9	25	44	11	19	34
20	1	13	51	3	10	12	5	16	29	7	26	34	9	29	40	11	23	15
21	1	17	35	3	14	15	5	20	49	7	30	50	9	33	35	11	26	56
22	1	21	20	3	18	19	5	25	9	7	35	5	9	37	29	11	30	37
23	1	25	6	3	22	23	5	29	30	7	39	20	9	41	23	11	34	18
24	1	28	52	3	26	29	5	33	51	7	43	34	9	45	16	11	37	58
25	1	32	38	3	30	35	5	38	12	7	47	47	9	49	9	11	41	39
26	1	36	25	3	34	41	5	42	34	7	52	0	9	53	1	11	45	19
27	1	40	12	3	38	49	5	46	55	7	56	12	9	56	52	11	49	0
28	1	44	0	3	42	57	5	51	17	8	0	24	10	0	43	11	52	40
29	1	47	48	3	47	6	5	55	38	8	4	35	10	4	33	11	56	20
30	1	51	37	3	51	15	6	0	0	8	8	45	10	8	23	12	0	0

The time of the southing or meridian transits of the fixed stars in pa. 46, may be found thus. On the noon of the day, preceding the night in which you want to know the time of the southing of any of those stars, find the Sun's place in the Ephemeris, and with it take out of the above table his right ascension in time; this you may do by inspection to a minute, which will be sufficient for your present purpose: Then from the right ascension of the star in pa. 46, subtract the right ascension of the Sun, the remainder will be the estimate time of the star's southing, and will not differ from the true time above 2 or 3 minutes at most, which may be near enough for ordinary uses. But when great exactness is required, reduce the Sun's place to this estimate time, and with it find in the above table his right ascension to seconds, which being subtracted from that of the star, the remainder will be the

Obliquity of the Ecliptic being $23^{\circ} 28'$.

Decl.	$\cap$			η			$\uparrow$			$\wp$			$\equiv$			$\times$		
	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s
0	12	0	0	13	51	37	15	51	15	18	0	0	20	8	45	22	8	23
1	12	3	40	13	55	27	15	55	25	18	4	22	20	12	54	22	12	12
2	12	7	20	13	59	17	15	59	36	18	8	43	20	17	3	22	16	0
3	12	11	0	14	3	8	16	3	48	18	13	5	20	21	11	22	19	48
4	12	14	41	14	6	59	16	7	0	18	17	26	20	25	19	22	23	35
5	12	18	21	14	10	51	16	12	11	18	21	48	20	29	26	22	27	22
6	12	22	2	14	14	44	16	16	26	18	26	9	20	33	31	22	31	8
7	12	25	42	14	18	37	16	20	40	18	30	30	20	37	37	22	34	54
8	12	29	23	14	22	31	16	24	55	18	34	51	20	41	41	22	38	40
9	12	33	4	14	26	25	16	29	10	18	39	11	20	45	45	22	42	25
10	12	36	45	14	30	20	16	33	26	18	43	31	20	49	48	22	46	9
11	12	40	26	14	34	16	16	37	42	18	47	51	20	53	51	22	49	53
12	12	44	8	14	38	13	16	41	59	18	52	11	20	57	52	22	53	37
13	12	47	50	14	42	10	16	46	16	18	56	31	21	1	53	22	57	20
14	12	51	32	14	46	8	16	50	34	19	0	50	21	5	53	23	1	3
15	12	55	14	14	50	7	16	54	52	19	5	8	21	9	53	23	4	46
16	12	58	57	14	54	7	16	59	10	19	9	26	21	13	52	23	8	28
17	13	2	40	14	58	7	17	3	29	19	13	44	21	17	50	23	12	10
18	13	6	23	15	2	8	17	7	49	19	18	1	21	21	47	23	15	52
19	13	10	7	15	6	9	17	12	9	19	22	18	21	25	44	23	19	34
20	13	13	51	15	10	12	17	16	29	19	26	34	21	29	40	23	23	15
21	13	17	35	15	14	15	17	20	49	19	30	50	21	33	35	23	26	56
22	13	21	20	15	18	19	17	25	9	19	35	5	21	37	29	23	30	37
23	13	25	6	15	22	23	17	29	30	19	39	20	21	41	23	23	34	18
24	13	28	52	15	26	29	17	33	51	19	43	34	21	45	16	23	37	58
25	13	32	38	15	30	35	17	38	12	19	47	47	21	49	0	23	41	39
26	13	36	25	15	34	41	17	42	34	19	52	0	21	53	1	23	45	19
27	13	40	12	15	38	49	17	46	55	19	56	12	21	56	52	23	49	0
28	13	44	0	15	42	57	17	51	17	20	0	24	22	0	43	23	52	40
29	13	47	48	15	47	6	17	55	38	20	4	35	22	4	33	23	56	20
30	13	51	17	15	51	15	18	0	0	20	8	45	22	8	23	24	0	0

the true time of the star's culminating or southing. And if from the time of the star's southing you subtract the semidiurnal arc belonging to it, the remainder will be the time of the star's rising; and being added to it, the sum will be the time of its setting.

Annexed is an Ex. of **SIRIUS** for Jan. 1, 1782.

$\odot$'s place at noon $\wp 11^{\circ} 19'$		h	m	s
Rt. Asc. of Sirius	-	6	35	33
$\odot$'s rt. asc. subtract	-	18	49	18
*'s estimate southing	-	11	46	15
$\odot$'s rt. asc. at that time sub.	-	18	51	28
*'s true southing	-	11	44	5
Semid. arc sub. & add	-	4	36	55
*'s rising aftern.	-	7	7	10
*'s setting	-	16	21	0

A Table of the mean Right-Ascensions in time, Semidurnal-Arcs, Declinations, and Magnitudes of 40 remarkable fixed Stars, with their Names, and Bayer's Literal Characters, for January 1, 1782.

Names of the Stars	Ch.	Rt. Asc.			Declination			Semid. Ar.			Ma	
		h	m	s	o	'	"	h	m	s		
Pole star, Alruccabah -	α	0	48	3	88	8	36	n	sets not			2
Andromeda's girdle, Mirach -	β	0	57	36	34	27	35	n	10	7	32	2
Andromeda's left foot, Almach	γ	1	50	36	41	16	30	n	sets not			2
Ram's following horn -	α	1	54	56	22	25	27	n	8	9	35	2
Whale's jaw, Menkar -	α	2	50	54	3	13	26	n	6	19	48	2
Medusa's head, Algol - -	β	2	54	4	40	6	6	n	sets not			2
Perseus's right side, Algenib	α	3	8	51	49	4	11	n	sets not			2
Brightest of the 7 stars -	η	3	34	34	23	25	2	n	8	16	40	3
Bull's south eye, Aldebaran	α	4	23	26	16	3	23	n	7	28	51	1
Auriga's left shoulder, Capella	α	5	0	37	45	44	59	n	sets not			1
Orion's left foot, Rigel -	β	5	4	4	8	28	3	s	5	20	28	1
Bull's north horn - -	β	5	12	32	28	24	22	n	8	57	1	2
Orion's left shoulder, Bellatrix -	γ	5	13	27	6	8	10	n	6	34	41	2
Orion's girdle - -	ϵ	5	25	10	1	21	24	s	5	56	42	2
Orion's right shoulder, Betelgeuse	α	5	43	23	7	20	59	n	6	40	58	1
In the great Dog's mouth, Sirius	α	6	35	33	16	25	14	s	4	36	55	1
Head of the 1st Twin, Castor	α	7	20	41	32	20	54	n	9	38	21	1
In the less Dog's thigh, Procyon	α	7	27	54	5	46	41	n	6	32	50	1
Head of the 2d Twin, Pollux	β	7	31	59	28	32	14	n	8	58	13	2
Hydra's heart, Alphard -	α	9	16	53	7	43	21	s	5	24	20	2
Lyon's heart, Regulus -	α	9	56	45	13	1	32	n	7	11	28	1
Great Bear, Lower Pointer	β	10	48	34	57	32	47	n	sets not			2
Great Bear, Upper Pointer -	α	10	50	8	62	55	27	n	sets not			2
Lion's tail, Deneb - -	β	11	37	56	15	47	28	n	7	27	18	2
Great Bear, 1st in the tail, Aliath	ϵ	12	44	22	57	8	46	n	sets not			2
Virgius's spike - -	α	13	13	44	10	1	2	s	5	12	20	1
Dragon's tail - -	α	13	58	30	65	25	19	n	sets not			2
Bootes, Arcturus - -	α	14	5	46	20	20	5	n	7	55	26	1
Libra, Southern Scale - -	α	14	38	52	25	7	26	s	4	44	23	2
Libra, Northern Scale - -	β	15	5	18	8	33	59	s	5	19	57	2
Bright star in the North Crown	α	15	25	28	27	27	35	n	8	48	36	2
Scorpion's heart, Antares	α	16	16	4	25	55	50	s	3	34	6	1
Hercules's head, Raf. Algethi	α	17	4	43	14	39	8	n	7	20	41	2
Head of Serpentarius - -	α	17	24	49	12	44	2	n	7	9	50	2
Dragon's head, Rastaben -	γ	17	51	34	51	31	19	n	sets not			2
Bright star in the Harp, Lyra	α	18	29	35	38	35	19	n	sets not			1
Bright star in the Eagle, Atair	α	19	40	8	8	18	10	n	6	45	57	2
Mouth of south Fish, Fomalhaut	α	22	45	34	30	46	17	s	2	52	6	1
Pegasus's wing, Markab -	α	22	53	55	14	2	3	n	7	17	10	2
Andromeda's head - -	α	23	57	9	27	53	2	n	8	52	19	2

A Table of the Longitudes, Latitudes, and Magnitudes of the most remarkable fixed Stars that the Moon can Eclipse, or make a near Appulse unto; exactly rectified to the beginning of the year 1780.

Con.	Cha.	Long.	Lat.	Magn.	Con.	Cha.	Long.	Lat.	Magn.
♄	♈	11 4 48	2 9 44 n	4	♄	♈	12 1 6	0 21 48 n	2
	♈	14 28 2	1 5 37 n	4	♄	♈	17 56 14	1 49 14 s	3
	♈	16 48 2	0 13 11 s	4	♄	♈	22 3 46	4 24 41 n	3
♄	♈	17 46 21	1 48 7 n	4	♄	♈	24 18 10	4 2 52 n	4
♄	♈	26 55 21	4 1 36 n	3	♄	♈	24 41 24	0 1 1 n	4
	♈	2 43 37	5 45 30 s	3	♄	♈	26 47 49	3 29 24 n	4
	♈	5 23 14	2 35 37 s	3	♄	♈	27 24 23	0 6 53 n	4
	♈	6 42 57	5 29 2 s	1	♄	♈	29 30 5	1 57 17 s	3
	♈	19 30 14	5 21 59 n	2	♄	♈	29 52 12	5 26 15 s	3
	♈	21 42 52	2 13 29 s	3	♄	♈	0 7 10	1 2 18 n	2
♄	♈	0 22 14	0 55 4 s	4	♄	♈	1 34 27	1 39 52 n	4
	♈	2 13 39	0 50 34 s	3	♄	♈	4 43 50	4 0 23 s	4
	♈	5 1 57	6 46 12 s	2	♄	♈	6 41 35	4 32 17 s	1
	♈	6 52 7	2 2 28 n	3	♄	♈	8 23 19	6 5 21 s	4
	♈	15 27 6	0 12 19 s	3	♄	♈	28 11 40	6 56 48 s	3
	♈	20 11 11	6 40 4 n	1	♄	♈	0 8 35	2 22 24 n	4
♄	♈	4 28 28	3 10 22 n	4	♄	♈	3 15 8	2 5 31 s	4
	♈	5 38 46	0 4 13 n	4	♄	♈	7 6 25	3 55 22 s	3
♄	♈	18 35 0	3 1 57 s	4	♄	♈	9 18 54	3 24 55 s	3
	♈	21 11 15	3 46 1 s	4	♄	♈	11 46 9	5 2 33 s	3
	♈	24 50 0	4 51 9 n	4	♄	♈	11 55 13	0 53 36 n	3
	♈	26 46 26	0 27 27 n	1	♄	♈	13 10 58	1 28 7 n	4
	♈	3 19 2	0 8 29 n	4	♄	♈	0 58 32	4 36 46 n	3
	♈	18 26 24	0 31 21 s	4	♄	♈	17 7 37	4 57 31 s	4
	♈	21 58 9	3 2 51 s	4	♄	♈	18 42 30	2 32 6 s	4
♄	♈	24 2 24	0 41 36 n	3	♄	♈	20 27 42	2 33 40 s	3
	♈	0 17 47	5 4 42 n	3	♄	♈	25 38 54	2 3 47 s	4
	♈	1 45 53	1 22 24 n	3	♄	♈	0 11 10	2 43 22 n	4
	♈	7 6 18	2 48 57 n	3	♄	♈	8 30 20	0 22 57 s	4
	♈	20 46 27	2 2 11 s	1	♄	♈	14 4 16	1 2 8 s	4

This table shewing the mean longitudes of 60 stars to the beginning of the year 1780, their mean longitudes for any other time may be found if $50\frac{1}{3}$ seconds be added for each succeeding, and subtracted for each preceding year, and proportionably for a part of a year. Thus, to find the longitude of the first star ♄♈, or ♄ piscium, for Feb. 15, 1782, or 2 years and one eighth after the tabular time; here $2\frac{1}{8}$ times $50\frac{1}{3}$ sec. make $1' 47''$, which being added to the tabular longitude, gives ♄ 11° 6' 35" for the longitude required at the given time.—The latitudes vary not.

The Latitudes and Longitudes of Ninety Places.

	Lat.		Long.			Lat.		Long.	
	°	'	°	'		°	'	°	'
Alexandria, Egypt	31	11 n	30	17 e	Isfahan	32	25 n	52	55 e
Amsterdam, Hol.	52	23 n	4	52 e	Land's end	50	6 n	5	50 w
Archangel, Ruf.	64	34 n	38	30 e	Leghorn	43	33 n	10	25 e
Athens	37	40 n	23	52 e	Leoff ft	52	38 n	1	54 e
Babelmandel	12	50 n	43	50 e	Leverpool	53	22 n	3	10 w
Batavia	6	12 s	106	45 e	Lima	12	18 s	76	50 w
Bengal	22	0 n	92	45 e	Lisbon	38	42 n	9	4 w
Berlin	52	33 n	13	26 e	Lizard	49	57 n	5	21 w
Bombay Isle	19	42 n	73	3 e	London	51	31 n	0	0
Boston, Amer.	42	25 n	70	37 w	Madras	13	8 n	80	7 e
Bresslau	51	3 n	17	13 e	Madrid	40	25 n	3	45 w
Brest	48	23 n	4	30 w	Manila	14	30 n	120	25 e
Bristol	51	28 n	2	30 w	Marfeilles	43	18 n	5	21 e
Buenos Ayres	34	35 s	58	0 w	Mexico	19	54 n	100	5 w
Cadiz	36	31 n	6	7 w	Mississipi, mouth	29	0 n	89	17 w
Calais	50	58 n	1	51 e	Moscow	55	25 n	37	51 e
Cairo, Egypt	30	2 n	31	26 e	Naples	40	51 n	14	19 e
Cambridge	52	13 n	0	4 e	Newcastle	55	0 n	1	18 w
Canaria Islands	28	1 n	15	0 w	Oporto	40	53 n	8	35 w
Canton	23	8 n	113	2 e	Orkney I. northend	59	24 n	3	23 w
Cape of Goodhope	34	29 s	18	23 e	Oxford	51	45 n	1	16 w
Cape Horn	55	59 s	67	26 w	Paris	48	50 n	2	25 e
Carthegena	10	27 n	75	26 w	Pekin	39	55 n	116	22 e
Charles Town Am.	33	22 n	79	50 w	Petersburg	59	56 n	30	19 e
Constantinople	41	0 n	28	53 e	Philadelphia	39	57 n	75	18 w
Copenhagen	55	41 n	12	50 e	Plymouth	50	24 n	4	15 w
Corinth	37	30 n	23	0 e	Port Mahon	39	51 n	3	53 e
Corke	51	54 n	8	30 w	Port Royal, Jam.	17	40 n	76	37 w
Dantzic	54	22 n	18	36 e	Portsmouth	50	48 n	1	1 w
Dover	51	7 n	1	19 e	Prague	50	5 n	14	15 e
Dublin	53	12 n	6	55 w	Quebec	46	55 n	71	12 w
Edinburgh	55	58 n	3	1 w	Rome	41	54 n	12	32 e
Ferro, Isle	27	48 n	18	6 w	Silly Isles	50	0 n	6	45 w
Finistierre, Cape	42	57 n	9	36 w	Smyrna	38	28 n	27	25 e
Genoa	44	25 n	8	41 e	Stockholm	59	22 n	18	12 e
Gibraltar	36	5 n	4	46 w	Syracuse	37	4 n	15	20 e
Glasgow	55	52 n	4	5 w	Tangier	35	55 n	5	45 w
Goa	15	31 n	73	50 e	Teneriff	28	16 n	16	32 w
Gottingen	51	32 n	9	58 e	Tunis	36	47 n	10	16 e
Greenwich	51	29 n	0	5 e	Turin	45	5 n	7	45 e
Hacluit's Head.	79	55 n	12	0 e	Venice	45	27 n	12	24 e
Halifax, America	44	46 n	63	20 w	Verd, Cape	14	47 n	17	28 w
Havanna	23	12 n	81	11 w	Vienna	48	11 n	16	28 e
Helena, I. St.	15	55 s	5	49 w	Uppsal	59	52 n	17	43 e
Jerusalem	31	50 n	35	25 e	Uraniberg	55	54 n	12	52 e

ng.

1
55 e
50 w
25 e
54 e
10 w
50 w
4 w
21 w
0
7 e
45 w
25 e
21 e
5 w
17 w
51 e
19 e
18 w
35 w
23 w
16 w
25 e
22 e
19 e
18 w
15 w
53 e
37 w
1 w
15 e
12 w
32 e
45 w
25 e
12 e
20 e
45 w
32 w
16 e
45 e
24 e
28 w
28 e
43 e
52 e

